THE GRADUATE SCHOOL

CAROLINA

2019-2020 ON THE WEB: CATALOG.UNC.EDU

THE UNIVERSITY *of* NORTH CAROLINA *at* CHAPEL HILL

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ACADEMIC CALENDAR

2019-2020

University Registrar calendars can be obtained on the University Registrar's Web site (http://registrar.unc.edu). For more information on Summer and Maymester Sessions, visit the Summer School's Web site (http://summer.unc.edu).

Summer Session I (SSI) and Maymester (MM) 2019

MM and SSI classes begin	Wednesday, May 15
MM last day for late registration	Wednesday, May 15
SSI last day for late registration	Thursday, May 16
Holiday (Memorial Day). No classes	Monday, May 27
MM classes end/exams	Thursday, May 30 Friday, May 31
SSI classes end	Monday, June 17
SSI reading day	Tuesday, June 18
SSI exam days	Wednesday, June 19 Thursday, June 20

Summer Session II (SSII) 2019

SSII classes begin	Monday, June 24
SSII last day for late registration	Tuesday, June 25
Holiday (Independence Day). No classes	Thursday, July 4
SSII classes end	Thursday, July 25
SSII reading day	Friday, July 26
SSII exam days	Monday, July 29 Tuesday, July 30

Fall Semester 2019

Final examination schedule (https://registrar.unc.edu/academic-calendar/final-examination-schedule-fall)

New student convocation	Sunday, August 18
Classes begin	Tuesday, August 20
Last day for late registration	Monday, August 26
Holiday (Labor Day). No classes	Monday, September 2
Holiday (University Day)	Saturday, October 12
Fall break. No classes	Thursday, October 17 Friday, October 18
Thanksgiving recess. No classes	Wednesday, November 27 Thursday, November 28 Friday, November 29
Classes end	Wednesday, December 4
Reading days	Thursday, December 5 Wednesday, December 11
Exam days	Friday, December 6 Saturday, December 7 Monday, December 9 Tuesday, December 10 Thursday, December 12 Friday, December 13
Fall Commencement	Sunday, December 15

Spring Semester 2020

Classes begin	Wednesday, January 8
Last day of late registration	Tuesday, January 14
Holiday (MLK Jr.). No classes	Monday, January 20
Spring break begins 5:00 p.m.	Friday, March 6
Classes resume 8:00 a.m.	Monday, March 16
Spring holiday. No classes	Friday, April 10
Classes end	Friday, April 24
Reading days	Wednesday, April 29 Saturday, May 2
Exam days	Monday, April 27 Tuesday, April 28 Thursday, April 30 Friday, May 1 Monday, May 4 Tuesday, May 5
Spring Commencement	Sunday, May 10

Summer Session I (SSI) and Maymester (MM) 2020

SSI and MM classes begin	Wednesday, May 13
MM last day for late registration	Wednesday, May 13
SSI last day for late registration	Thursday, May 14
Holiday (Memorial Day). No classes	Monday, May 25
MM classes end/exams	Thursday, May 28 Friday, May 29
SSI classes end	Monday, June 15
SSI reading day	Tuesday, June 16
SSI exam days	Wednesday, June 17 Thursday, June 18

Summer Session II (SSII) 2020

SSII classes begin	Monday, June 22
SSII last day for late registration	Tuesday, June 23
Holiday (Independence Day). No classes	Friday, July 3
SSII classes end	Thursday, July 23
SSII reading day	Friday, July 24
SSII exam days	Monday, July 27 Tuesday, July 28

ABOUT UNC

The University Catalog

Although the publisher of this catalog has made every reasonable effort to attain factual accuracy herein, no responsibility is assumed for editorial or clerical errors or errors occasioned by mistakes. The publisher has attempted to present information which, at the time of preparation for publication, most accurately describes the course offerings, faculty listings, policies, procedures, regulations, and requirements of the University. However, it does not establish contractual relationships. The University reserves the right to alter or change any statement contained herein without prior notice.

Published by the University of North Carolina at Chapel Hill, Chapel Hill, N.C.

Accreditation

The University of North Carolina at Chapel Hill is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award baccalaureate, master's, doctoral, and professional degrees and certificates. For more information about the accreditation status of UNC–Chapel Hill contact: Southern Association of Colleges and Schools Commission on Colleges, 1866 Southern Lane, Decatur, Georgia 30033-4097; telephone number (404) 679-4500; www.sacscoc.org (http://www.sacscoc.org).

Mission Statement: The University of North Carolina at Chapel Hill

The University of North Carolina at Chapel Hill, the nation's first public university, serves North Carolina, the United States, and the world through teaching, research, and public service. We embrace an unwavering commitment to excellence as one of the world's great research universities.

Our mission is to serve as a center for research, scholarship, and creativity and to teach a diverse community of undergraduate, graduate, and professional students to become the next generation of leaders. Through the efforts of our exceptional faculty and staff, and with generous support from North Carolina's citizens, we invest our knowledge and resources to enhance access to learning and to foster the success and prosperity of each rising generation. We also extend knowledge-based services and other resources of the University to the citizens of North Carolina and their institutions to enhance the quality of life for all people in the State.

With *lux, libertas* — light and liberty — as its founding principles, the University has charted a bold course of leading change to improve society and to help solve the world's greatest problems.

Approved by the UNC Board of Governors, November 2009 and February 2014

UNC's Commitment to Diversity and Inclusivity

UNC–Chapel Hill has a long-held tradition of striving for excellence. Quality education takes place among persons with differing social backgrounds, economic circumstances, personal characteristics, philosophical outlooks, life experiences, perspectives, beliefs, and expectations. We at the University acknowledge that we face ongoing challenges to overcome the effects and influences of adverse historical, social, political, and economic factors. A critical element for any 21st century educational institution is a diverse, equitable, and inclusive community that functions in a global context. The historical, political, economic, and educational backgrounds of the University, the state, and the nation shape our present circumstances and inform the measures we must take to accomplish our highest aspirations. The University engages in teaching, research, and service to expand and discover knowledge, promote educational enlightenment, and improve understanding. We work to assure that we have a complement of students, faculty, and staff that broadly reflects the ways in which people differ. We speak of these differences as representing "diversity."

UNC's commitment to inclusive excellence began in the 1960s through the support of minority programming and continues today through the work of the University Office for Diversity and Inclusion (D&I) (http://diversity.unc.edu). The office is led by the associate vice chancellor for diversity and inclusion, who serves as the chief diversity officer and advises the University community on diversity policies and issues. The office collaborates with University officers and campus units to identify and implement strategies and initiatives for achieving the core values with respect to diversity and the goal of increased diversity among students, staff, and faculty. The ultimate goal of both D&I and the University is building an inclusive and equitable environment that values and respects the contributions of all members of the Carolina community.

The University's Policy on Prohibited Discrimination, Harassment, and Related Misconduct, Including Sexual and Gender-Based Harassment, Sexual Violence, Interpersonal Violence, and Stalking

The University is committed to providing an inclusive and welcoming environment for all members of our community. The University values safety, diversity, education, and equity and is firmly committed to maintaining a campus environment free from discrimination, harassment, and related misconduct. In accordance with its Policy Statement on Nondiscrimination, the University does not unlawfully discriminate in offering equal access to its educational programs and activities or with respect to employment terms and conditions on the basis of an individual's age, color, disability, gender, gender expression, gender identity, genetic information, race, national origin, religion, sex, sexual orientation, or veteran status (collectively referred to as "protected status"). The University's protection of these statuses is grounded in federal law. Federal law also governs the University's response to sexual assault, sexual violence, interpersonal violence (including domestic and dating violence), and stalking. Such acts violate the essential dignity of our community member(s) and are contrary to our institutional values.

For more information about the policy and procedures, visit the University's Policy on Prohibited Discrimination, Harassment and Related Misconduct (https://unc.policystat.com/policy/4514917/latest), the University's Policy Statement on Nondiscrimination, (https://unc.policystat.com/policy/4467906/latest) Nondiscrimination for Program Participants (https://unc.policystat.com/policy/4469242/latest), Nondiscrimination for Student Organizations (https://unc.policystat.com/policy/5429623/latest), or contact the Equal Opportunity and Compliance Office (https://eoc.unc.edu).

Equal Opportunity and Compliance Office
137 East Franklin Street, Suite 404, Campus Box 9160
Chapel Hill, NC 27599-9160
Telephone: (919) 966-3576

Email: eoc@unc.edu

Policy Statement on Nondiscrimination: Educational and Employment Decisions

The University is committed to providing an inclusive and welcoming environment and to ensuring that educational and employment decisions are based on individuals' abilities and qualifications. Consistent with these principles and applicable laws, it is therefore the University's policy not to discriminate on the basis of age, color, disability, gender, gender expression, gender identity, genetic information, national origin, race, religion, sex, sexual orientation, or veteran status as consistent with the University's Policy on Prohibited Discrimination, Harassment, and Related Misconduct. No person, on the basis of protected status, shall be excluded from participation in, be denied the benefits of, or be subjected to unlawful discrimination, harassment, or retaliation under any University program or activity, including with respect to employment terms and conditions. Such a policy ensures that only relevant factors are considered and that equitable and consistent standards of conduct and performance are applied.

Resources for Information and Assistance

Individuals are encouraged to report incidents of prohibited conduct to the Equal Opportunity and Compliance Office, the Title IX Compliance Coordinator, the Report and Response Coordinators, the Office of the Dean of Students, or the UNC Department of Public Safety. As an alternative, an individual can also seek confidential assistance that does not involve notice to the University. If the conduct you have experienced is sexual violence or other criminal activity, including interpersonal (relationship) violence or stalking, you are also encouraged to report the incident to local law enforcement. See below for a comprehensive list of support and reporting options or refer to the University's Policy on Prohibited Discrimination, Harassment, and Related Misconduct (https://unc.policystat.com/policy/4514917/latest).

Reporting Options

UNC Department of Public Safety (http://dps.unc.edu)
(919) 962-8100

Equal Opportunity and Compliance Office (http://eoc.unc.edu)
214 W. Cameron Avenue
(919) 966-3576

Director of Title IX Compliance/Title IX Coordinator
Adrienne Allison
137 East Franklin St., Suite 404
(919) 962-7177
adrienne.allison@unc.edu

Report and Response Coordinators
Ew Quimbaya-Winship / Rebecca Gibson
1117 Student and Academic Services Building North/
137 East Franklin St., Suite 23
(919) 843-3878 / (919) 445-1578
eqw@unc.edu/rmgibson@unc.edu

The Office of the Dean of Students (http://deanofstudents.unc.edu)
1106 Student and Academic Services Building North
(919) 966-4042
odos@unc.edu

Confidential Resources

Carolina Ethics Line (https://secure.ethicspoint.com/domain/media/en/gui/10808)
The University's Compliance Line, now called Carolina Ethics Line, is a secure method through which to submit an anonymous report regarding academic matters, athletics, financial improprieties, faculty and staff matters, health care, information technology, research, risk and safety, student affairs, or other matters either online or by telephone. All reports submitted through Carolina Ethics Line will be given careful attention by appropriate UNC–Chapel Hill offices and officials. Anyone filing a report via Carolina Ethics Line should retain the report key and password and return to the Web site within 10 working days to check for comments or followup questions.
(866) 294-8688 (toll free)

Campus Health Services (https://campushealth.unc.edu)
(919) 966-2281

UNC Hospital Emergency Room (http://www.med.unc.edu/emergmed)
(984) 974-4721

Counseling and Psychological Services (https://campushealth.unc.edu/services/counseling-and-psychological-services)
(919) 966-3658

University Ombuds Office (http://ombuds.unc.edu)
(919) 843-8204

Gender Violence Services (http://womenscenter.unc.edu/resources/gender-violence-services)
Cassidy Johnson, Coordinator
(919) 962-1343
cassidyjohnson@unc.edu or gvsc@unc.edu

Holly Lovern, Coordinator
(919) 962-7430
holly.lovern@unc.edu

Compass Center for Women and Families (https://unitedwaytriangle.galaxydigital.com/agency/detail/?agency_id=3865)
(919) 929-7122 (24-hour hotline)

ComPsych Employee Assistance Program (http://guidanceresources.com)
(877) 314-5841 (24 hours)

Orange County Rape Crisis Center (http://ocrcc.org)
(919) 968-4647 (local number)
(866) 935-4783 (24-hour hotline, toll free)
(919) 967-7273 (24-hour hotline, local number)
(919) 338-0746 (TTY)

Graduation Rate

Pursuant to the federal Student Right-to-Know Act, we report that, in 2017–2018, the six-year completion or graduation rate for undergraduates who entered the University of North Carolina at Chapel Hill in 2012 on a full-time basis was 89.3 percent.

ADMINISTRATIVE OFFICERS

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Amy Hertel, Ph.D., *Chief of Staff*

Clayton Somers, J.D., *Vice Chancellor for Public Affairs and Secretary of the University*

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UNC-CHAPEL HILL: AN INTRODUCTION

The University of North Carolina at Chapel Hill is the most comprehensive institution in North Carolina, both in the range of its programs at all levels and in the breadth of its specialized research and public service programs. Its 14 schools and the College of Arts and Sciences provide instruction in more than 100 fields, offering 70 bachelor's, 113 master's, 66 doctoral, and 8 professional degrees, as well as 16 certificates, in academic areas critical to North Carolina's future: business, dentistry, education, information and library science, media and journalism, government, law, medicine, nursing, pharmacy, public health, and social work, among others.

Since 1795, when its doors first opened to students, the University has remained faithful to its founders' charge to duly encourage and promote all useful learning for the betterment of humanity.

The University was anticipated by a section of the first state constitution drawn up in 1776 directing the establishment of "one or more universities" in which "all useful learning shall be duly encouraged and promoted." State support, it directed, should be provided so that instruction might be available "at low prices." The American Revolution intervened, and it was not until 1789, the year that George Washington became president of the new nation, that the University was chartered by the General Assembly. Despite constitutional instructions to the contrary, no state appropriations were made, and the trustees were left to secure land and money themselves. On October 12, 1793, the cornerstone was laid for a brick building on a hilltop near the center of the state amidst the colorful fall foliage of dogwood, oak, and tulip trees.

The site, lying at the crossing of north-south and east-west roads, was marked only by a small Anglican chapel that soon shared part of its name—New Hope Chapel Hill—with the community that developed there. Legislator and trustee William R. Davie, who had been instrumental in securing passage of the charter, took the lead in organizing the University. Davie presided over the Masonic ritual of the laying of the cornerstone. In time he came to be called "the Father of the University." Many years later a large poplar or tulip tree, first mentioned in 1818 and still standing near the center of the old campus, was called Davie Poplar in his honor.

The first building and, indeed, the only building for two years, was a two-story brick structure that came to be called Old East. It is now a National Historic Landmark, the oldest state university building in America. Opened to students on January 15, 1795, the University of North Carolina received its first student, Hinton James of New Hanover County, on February 12. By March there were two professors and 41 students present.

The second state university did not begin classes until 1801, when a few students from nearby academies assembled under a large tree at Athens, Georgia, for instruction. By then four classes had already been graduated at Chapel Hill, and there were to be three more before the first diplomas were issued in Georgia. The next building on the Carolina campus was Person Hall, begun in 1796 and long used as the chapel. The cornerstone of Main or South Building was laid in 1798. All three are older than any other American state university building.

The Young University

During the early 19th century the trustees began a period of strong support in the development of the young University. Even though their proclaimed initial goal for the University had been to provide trained leadership for the state, the curriculum followed the customary classical trend. In 1815, however, the natural sciences were given equal place, and in the 1820s Professors Denison Olmstead and Elisha Mitchell prepared the nation's first geological survey. In 1831 the first astronomical observatory at a state university was built under the direction of President Joseph Caldwell. Student enrollment increased steadily, and by 1860 only Harvard, Yale, and the University of Virginia had more students.

Young men from many states came to Chapel Hill for their education, particularly those from families who had recently left North Carolina to settle elsewhere in the South. The University of North Carolina provided governors not only for North Carolina but also for many other states; countless professions and occupations were represented among its graduates, including cabinet members, clergymen, diplomats, engineers, geologists, judges, legislators, surveyors, teachers, and a president and a vice president of the United States.

Though the Civil War closed many colleges and universities, the University at Chapel Hill remained open throughout the war, though its students were few. During Reconstruction, however, it was closed from 1870 until 1875. When it reopened, the University's leadership began to inaugurate programs that once again marked it as a leading university.

The General Assembly in 1931 consolidated the University with the Woman's College at Greensboro and North Carolina State College at Raleigh under a single board of trustees. As an economy measure during the Depression and as a means of eliminating duplication, the trustees allocated each unit specific roles in higher education for the state. The offices of the Consolidated University were established on the Chapel Hill campus and University President Frank Porter Graham became the Consolidated University's first president.

The period of the Depression in the 1930s saw a great deal of new construction on the campus as federal funds became available to create jobs for the unemployed. New dormitories, classroom buildings, a gymnasium, and other buildings and improvements were built in part from this source. World War II also resulted in some new construction and alterations on campus as the University's facilities were used to train military personnel.

Expansion continued throughout the 20th century, and today UNC–Chapel Hill ranks among the great institutions of higher education in the nation. Beginning with one building, 41 students, and two professors, the University has now grown to more than 300 buildings, 30,011 students annually, and 3,887 faculty members.

Top Rankings

The University has been recognized for the quality of its undergraduate and graduate programs in every national survey conducted in the last third of the 20th century and into the 21st. *U.S. News and World Report*'s survey of American colleges and universities consistently ranks the University among the best colleges in the nation and among the top research universities.

These accolades reflect the quality of the curriculum and of the faculty, whose research orientation allows them to share with their students not only the thrill of discovery but also the latest advancements and new knowledge. Another asset that contributes to this reputation is UNC–Chapel Hill's superb library system containing more than nine million print and electronic volumes. It is ranked among the top research libraries in the United States and Canada by the Association of Research Libraries.

Commitment to Diversity

The University of North Carolina at Chapel Hill strives for excellence both in academic engagement and co-curricular support. Sustaining a diverse and inclusive community is critical to achieving educational excellence.

Framework for Understanding Diversity, Equity, and Inclusion at UNC–Chapel Hill

The work of the University in the 21st century functions in a global context. The historical, political, economic, and educational backgrounds of the University, the state, and the nation shape our present circumstances and inform the measures we must take to accomplish our highest aspirations. We acknowledge that we face an ongoing challenge to overcome the effects and influences of adverse historical, social, political, and economic factors. The University engages in teaching, research, and service to expand and discover knowledge, promote educational enlightenment, and improve understanding with the ultimate end of uplifting humankind. Education takes place most productively among persons with differing social backgrounds, economic circumstances, personal characteristics, philosophical outlooks, life experiences, perspectives, beliefs, and expectations. The University works to assure that we have a complement of students, faculty, and staff that broadly reflects the ways in which people differ. We believe that "diversity matters" within and beyond the campus community.

UNC–Chapel Hill's commitment to inclusive excellence began in the 1960s through the support of minority programming and continues today through the establishment of the University Office for Diversity and Inclusion (D&I).

The University Office for Diversity and Inclusion serves as a resource to the entire Carolina campus and partners with all student, faculty, staff, and organizational entities. D&I collaborates with University officers and campus units to identify and implement strategies and initiatives for achieving the goals of increased diversity, with the goal of building an inclusive and equitable environment that values and respects the contributions of students, faculty, and staff. D&I provides diversity education, opportunities, and development for faculty, staff, students, and community members; develops, implements, and supports recruitment and leadership programs that facilitate access and retention and promote inclusive excellence across institutional segments (e.g., student enrollment, faculty hiring, staff development); conducts diversity research, assessment, and reporting to generate and inform the campus and beyond on diversity-related issues; and provides consultation and project management to promote and enhance diversity and community engagement.

Partnerships and collaborations with vice chancellors, deans, and other unit heads are leveraged to accomplish the University's goals for establishing diversity within the faculty, staff, and student cohorts and for fulfilling the public university mission of service, outreach, and engagement. Additional information can be found at diversity.unc.edu (http://diversity.unc.edu).

THE UNC SYSTEM

History of the University

In North Carolina all the public educational institutions that grant baccalaureate degrees are part of the University of North Carolina. The University of North Carolina at Chapel Hill is one of the constituent institutions of the multicampus state university.

The University of North Carolina, chartered by the North Carolina General Assembly in 1789, was the first public university in the United States to open its doors and the only one to graduate students in the 18th century. The first class was admitted in Chapel Hill in 1795. For the next 136 years the only campus of the University of North Carolina was at Chapel Hill.

In 1877 the North Carolina General Assembly began sponsoring additional institutions of higher education, diverse in origin and purpose. Five were historically black institutions, and another was founded to educate Native Americans. Several were created to prepare teachers for the public schools. Others had a technological emphasis. One is a training school for performing artists.

In 1931 the North Carolina General Assembly redefined the University of North Carolina to include three state-supported institutions: the campus at Chapel Hill (now the University of North Carolina at Chapel Hill), North Carolina State College of Agriculture and Engineering at Raleigh (now North Carolina State University), and the North Carolina College for Women (Woman's College) at Greensboro (now the University of North Carolina at Greensboro). The new multicampus University operated with one board of trustees and one president. By 1969 three additional campuses had joined the University through legislative action: the University of North Carolina at Charlotte, the University of North Carolina at Asheville, and the University of North Carolina at Wilmington.

In 1971 the General Assembly passed legislation bringing into the University of North Carolina the state's 10 remaining public senior institutions, each of which had until then been legally separate: Appalachian State University, East Carolina University, Elizabeth City State University, Fayetteville State University, North Carolina Agricultural and Technical State University, North Carolina Central University, North Carolina School of the Arts, Pembroke State University, Western Carolina University, and Winston-Salem State University. This action created a 16-campus University. In l985 the North Carolina School of Science and Mathematics, a residential high school for gifted students, was declared an affiliated school of the University, and it became the 17th constituent institution.

The UNC Board of Governors is the policy-making body legally charged with "the general determination, control, supervision, management, and governance of all affairs of the constituent institutions." It elects the president, who administers the University. The 32 voting members of the board are elected by the North Carolina General Assembly for four-year terms. Former board chairs and board members who are former governors of North Carolina may continue to serve for limited periods as nonvoting members emeriti. The president of the UNC Association of Student Governments, or that student's designee, is also a nonvoting member. The UNC System Office (http://www.northcarolina.edu) is in Chapel Hill, NC.

Each of the 17 institutions is headed by a chancellor, who is chosen by the Board of Governors on the president's nomination and is responsible to the president. Each institution has a board of trustees, consisting of eight members elected by the Board of Governors, four appointed by the governor, and the president of the student body, who serves ex officio. (The North Carolina School of the Arts has two additional ex officio members.) Each board of trustees holds extensive powers over academic and other operations of its institution on delegation from the Board of Governors.

The UNC System Office

William L. Roper, M.P.H., M.D.
Interim President

Meredith Didier, B.A.
Senior Vice President and Chief of Staff

Andrea Poole
Senior Associate Vice President and Secretary of the University

Camille Barkley, M.B.A.
Associate Vice President for Strategic Communications

George Briggs, M.L.A.
Executive Director, NC Arboretum

Matthew Brody, M.S.
Vice President for Human Resources

Joanna Carey Cleveland, J.D.
Vice President for Legal Affairs and Deputy General Counsel

Clinton Carter, M.B.A.
Senior Vice President and Chief Financial Officer

Dan Cohen-Vogel, Ph.D.
Vice President for Data and Analytics

Joshua Ellis, B.A.
Associate Vice President for Media Relations

Steve Hammel, B.S.
Interim Executive Director and General Manager, UNC-TV

Brent Herron, B.S.
Associate Vice President for Safety and Emergency Operations

Cameron Howell, Ph.D.
Vice President for Strategic Initiatives

Andrew P. Kelly, Ph.D.
Senior Vice President for Strategy and Policy

Julie Kowal, J.D.
Associate Vice President for P12 Strategy and Policy

Bethany Meighen, Ed.D.
Interim Vice President for Academic and Student Affairs

Timothy Minor, M.P.A.
Vice President for University Advancement

Andrew Moretz, B.A.
Vice President for State Government Relations

Elizabeth Morra, B.A.
Vice President for Federal Affairs

Jim Ptaszynski, Ph.D.
Vice President for Digital Learning

Shun Robertson, Ph.D.
Assistant Vice President for Policy Development and Analysis

Lynne Sanders, B.A.
Vice President for Compliance and Audit

Thomas Shanahan, J.D.
Senior Vice President and General Counsel

John Sherer, B.A.
Spangler Family Director, UNC Press

Kim van Noort, Ph.D.
Senior Vice President for Academic Affairs

Keith Werner, B.B.A.
Vice President and CIO

Vacant
Vice President for Academic Programs, Faculty and Research

Vacant
Vice President for Economic Development, Engagement and Partnerships

Vacant
Senior Vice President for External Affairs

Vacant
Vice President for Financial Planning and Analysis

The University of North Carolina: Constituent Institutions

Universities

Appalachian State University (http://www.appstate.edu)

East Carolina University (http://www.ecu.edu)

Elizabeth City State University (http://www.ecsu.edu)

Fayetteville State University (http://www.uncfsu.edu)

North Carolina Agricultural and Technological State University (http://www.ncat.edu)

North Carolina Central University (http://www.nccu.edu)

University of North Carolina School of the Arts (http://www.uncsa.edu)

North Carolina State University (http://www.ncsu.edu)

University of North Carolina at Asheville (http://www.unca.edu)

University of North Carolina at Chapel Hill (http://www.unc.edu)

University of North Carolina at Charlotte (http://www.uncc.edu)

University of North Carolina at Greensboro (http://www.uncg.edu)

University of North Carolina at Pembroke (http://www.uncp.edu)

University of North Carolina at Wilmington (http://www.uncw.edu)

Western Carolina University (http://www.wcu.edu)

Winston-Salem State University (http://www.wssu.edu)

High School

North Carolina School of Science and Mathematics (http://www.ncssm.edu)

GRADUATE

About the Graduate Catalog

The *Graduate Catalog* provides basic information about more than 60 doctoral and over 100 master's programs currently active in The Graduate School. It describes admission standards and requirements, tuition and other costs, and sources of financial aid (including fellowships). Links to research institutes and centers also are given. In addition to brief descriptions of programs and a comprehensive listing of all graduate courses, this catalog includes, under each program description, a current roster of graduate faculty members specializing in that area together with their specific research interests. For additional information on many of these topics, please visit The Graduate School's Web site (http://gradschool.unc.edu).

The University of North Carolina at Chapel Hill is one of the leading graduate research universities in the United States. As one of the most comprehensive universities in the nation, Carolina provides a breadth of study and interdisciplinary experience matched by few institutions. The University's academic excellence is enhanced by the support of a community that includes people from a range of ethnic, racial, socioeconomic, and geographic backgrounds, as well as individuals whose personal attributes contribute to a rich learning environment. The University is committed to equality of educational opportunity. In addition to an outstanding faculty, comprehensive research and library resources, and exceptional facilities, the University has a warm and collegial spirit that is conducive to students' personal growth and scholarship.

As a supplement to the *Graduate Catalog*, the *Graduate School Handbook* (http://handbook.unc.edu) contains most of the policies and procedures of The Graduate School at the University of North Carolina at Chapel Hill. Students should become familiar with the material pertaining to their degree programs and, together with their faculty advisors, make certain that the chosen program of study complies with all policies.

Several UNC–Chapel Hill schools offer graduate degree programs that are not administered by The Graduate School. For information about these programs, please consult the following schools' Web sites: Kenan–Flagler Business School (http://www.kenan-flagler.unc.edu), UNC Adams School of Dentistry (http://www.dentistry.unc.edu), School of Education (http://www.dentistry.unc.edu), School of Law (http://www.law.unc.edu), School of Medicine (https://www.med.unc.edu), Eshelman School of Pharmacy (http://pharmacy.unc.edu), and the Friday Center for Continuing Education (http://fridaycenter.unc.edu).

Administrative Board of The Graduate School

Melinda Beck, Ph.D.
Nutrition (2020)

Robert Bourret, Ph.D.
Microbiology and Immunology (2021)

Eileen Burker, Ph.D.
Allied Health Sciences (2021)

Jennifer D'Auria, Ph.D.
Nursing (2021)

Christine Durrance, Ph.D.
Public Policy (2020)

David Garcia, Ph.D.
Music (2021)

Jennifer Gerz-Escandón, Ph.D., Associate Dean, Education and Fellowships, Graduate School

Heidi Hennink-Kaminski, Ph.D.
Media and Journalism (2021)

Michelle Hoffner O'Connor
Graduate and Professional Student Federation (2019)

Eric Houck, Ph.D.
Education (2020)

Sandra Hughes-Hassell, Ph.D.
Information and Library Science (2019)

Michael Jarstfer, Ph.D.
Pharmacy (2021)

Erica Johnson, Ph.D.
Global Studies (2019)

Michael Lambert, Ph.D.
School of Social Work (2020)

Christian Lundblad, Ph.D.
Kenan-Flagler Business School (2021)

Steven Matson, Ph.D., Dean and Chair
Biology

Hoi Ning Ngai, Ph.D., Associate Dean, Student Affairs, Graduate School

Andrew Nobel, Ph.D.
Statistics and Operations Research (2021)

Patricia Parker, Ph.D.
Communication (2020)

Jan Prins, Ph.D.
Computer Science (2020)

Bill Rivenbark, Ph.D.
School of Government (2019)

Graeme Robertson, Ph.D.
Political Science (2019)

Michelle Robinson, Ph.D.
American Studies (2020)

Anne Sanders, Ph.D.
Dental Ecology (2021)

Stephanie Schmitt, Ph.D., Associate Dean, Academics, Graduate School

Donna Surge, Ph.D.
Geological Sciences (2020)

Graduate School Administration

Steven W. Matson, Ph.D.
Dean

Jennifer Gerz-Escandón, Ph.D.
Associate Dean for Interdisciplinary Education and Fellowship Programs

Hoi Ning Ngai, Ph.D.
Associate Dean for Student Affairs

Stephanie Schmitt, Ph.D.
Associate Dean for Academics

Rob Bacchus, M.N.A.
Assistant Dean for Development and Alumni Relations

Sarah Jacobson, M.A.
Assistant Dean, Admissions and Enrolled Students

Graduate School Staff

The Graduate School is committed to improving and facilitating the integration of graduate and professional students' academic, professional, and personal development, as well as to assist students to make the most of their Carolina experience. To further these aims, The Graduate School staff, located in Bynum Hall, is responsible for assisting students in a number of capacities. The offices of the associate dean for student affairs and the associate dean for academics create and implement programs and services that specifically address the needs of graduate and professional students. Some of these programs are listed below. The diversity and student success program develops and provides a number of programs and services throughout the year, both academic and social in nature, to assist graduate students of color with a successful transition and experience during their graduate work. The director of graduate student academic and professional development oversees workshops, training, and events in the Graduate Student Center focused on broad professional skills and career success. Graduate School staff are available to all graduate and professional students as a source of counsel, information, and referral for questions involving student services, academic procedures, policies, and grievances. Information is available by telephone at (919) 966-2611 or on the Web (http://gradschool.unc.edu).

Rob Bacchus
Assistant Dean for Development and Alumni Relations

Maria Erb
Co-Director, Diversity and Student Success

Rhonda Ethridge
Administrative Support

Pam Frome
Research Associate for Graduate Education Studies

Jennifer Gerz-Escandón
Associate Dean for Interdisciplinary Education and Fellowship Programs

Chris Harris
Admissions and Enrolled Students Specialist

Sarah Jacobson
Assistant Dean for Admissions and Enrolled Students

Melissa Lawrence
Admissions and Enrolled Students Specialist

Betty Lewis
Admissions and Enrolled Students Specialist

Faye Lewis
Executive Assistant to the Dean/Special Projects Coordinator

Jenny Lewis
Admissions and Enrolled Students Specialist

Steven Matson
Dean

Julie Montaigne
Fellowship and Funding Manager

Hoi Ning Ngai
Associate Dean for Student Affairs

Lian Niu
Functional Data Analyst

Teresa Phan
Fellowship Programs Coordinator and Events Planner

Lou Anne Phelps
Program Review and Student Services Coordinator

Alicia Rogers
Human Resources Manager

Shaun Rutherford
Admissions and Enrolled Students Specialist

Bryan Rybarczyk
Assistant Dean for Graduate Student Academic and Professional Development

Deb Saine
Communications and Interdisciplinary Programs Manager

Stephanie Schmitt
Associate Dean for Academics

Medelia Stambach
Financial Manager

Megan Totten
Admissions and Enrolled Students Specialist

Leah Townsend
Director, Graduate School Professional Programs

Rachell Underhill
Web and Information Systems Manager

Kathy Wood
Co-Director, Diversity and Student Services

Beverly Wyrick
Director of Finance and Administration

History of The Graduate School

The University of North Carolina at Chapel Hill was the first state university to admit students. It was chartered in 1789 and formally opened in 1795; from early in its history, it has encouraged research and creative activity. As early as 1853–1854 the catalog of the University carried an announcement of graduate coursework. In 1876, after the institution had been closed for the period 1871–1875, the catalog announced the requirements for the master's degree, and the next issue

carried an announcement of regulations governing the degrees of master of arts, master of science, and doctor of philosophy. Several graduate degrees were awarded before the turn of the century (the first Ph.D. having been conferred in 1883), but it was not until 1903 that a separate graduate school with a dean was established.

The Graduate School celebrated its 100th year in 2003 by hosting a national forum on graduate education, sponsoring numerous student and alumni recognition ceremonies, and commissioning the book, *Pioneer to Powerhouse: The History of Graduate Education at Carolina.*

In 1922 the graduate faculty voted to vest in the Administrative Board of The Graduate School legislative powers in matters that affected graduate education, to authorize the Administrative Board to admit members to the teaching faculty of The Graduate School, and to vest in the Administrative Board the responsibility for authorizing curricula and courses carrying graduate credit.

With the exception of the master of business administration (M.B.A.), the master of accounting (M.A.C.), the master's in clinical laboratory science (M.C.L.S.), the master's in radiologic science (M.R.S.), the master of law (L.L.M.), the master of health sciences (M.H.S.), the master of education for experienced teachers (M.Ed.), and the master of school administration (M.S.A.), all master's degrees offered by the University and the degrees of doctor of philosophy, doctor of education (post-2011), doctor of nursing practice, and doctor of public health are conferred by The Graduate School.

Work toward advanced degrees at the University of North Carolina at Chapel Hill proceeds under policies and regulations established by the graduate faculty. The immediate direction of The Graduate School is in the charge of the Administrative Board, of which the dean is chair. At present the board consists of academic and health affairs faculty representatives appointed by the chancellor upon nomination by the dean of The Graduate School.

Summer School for Graduate Students

The University of North Carolina at Chapel Hill established what was possibly the first summer school in America in 1877. The "Summer Normal School," as it was then called, enrolled 235 students in courses over 10 disciplines. About half the students were teachers; students came from 42 counties across North Carolina and from neighboring states. Summer School was the first school at UNC–Chapel Hill to enroll women, beginning in its first year and continuing thereafter. By 1925, records indicate that 19,983 students had enrolled in Summer School.

Curricula and courses offered during Summer School are comparable to those of the fall and spring semesters. Summer School offers two sessions of five weeks each, a three-week Maymester, and other short courses with various beginning and ending dates. The summer program is planned to meet the needs of graduate students who are fulfilling degree requirements in this institution, visiting graduate students who desire to take courses for transfer to other institutions, teachers and administrators who desire to meet state certification requirements, and other students who have special educational objectives.

Graduate students who wish to be admitted or readmitted for the summer to a degree program should contact The Graduate School. The requirements for admission to a degree program starting in the summer are the same as those in the regular academic year. Those who desire other information or those wanting to enroll in the summer as visiting students should visit Summer School's Web site (http://summer.unc.edu), contact Summer School via email at summer_school@unc.edu, or telephone (919) 966-4364. Summer School is located at 134 East Franklin Street, Room 200, Chapel Hill, NC 27599-3340.

Visiting Scholars

Registration as a visiting scholar at the University of North Carolina at Chapel Hill entitles the registrant to certain privileges of the University, the issuance of a UNC One Card, and the use of University facilities for the duration of the visiting scholar's stay.

Eligibility for registration as a visiting scholar is limited to those who

1. Are not on the University payroll as employees in any capacity, and
2. Are visiting the University under the sponsorship of an academic department or school for the furtherance of scholarly interests.

Visiting scholars may include faculty members on leave from other institutions of higher learning, postdoctoral fellows, or others who hold the terminal degree in their fields and who are invited to visit by a department or school.

Persons interested in applying for visiting scholars status should communicate with the appropriate department or school within the University. Further details concerning University privileges for visiting scholars are available from the Human Resources Office (http://hr.unc.edu/benefits), CB# 1045, 725 Martin Luther King Jr. Boulevard, Chapel Hill, NC 27599-1045.

The University Year

Two semesters of approximately 17 weeks each and a summer school consisting of two sessions (each five and one-half weeks long) constitute the University year. The requirements for admission to graduate programs and for graduate degrees in the summer session are the same as those in the regular academic year. For the schedule of events of particular interest to graduate students, consult the academic calendars at the Office of the University Registrar (http://registrar.unc.edu).

ADMISSIONS

The University Catalog contains information about admission requirements, placement tests, transfer of credit, readmission, online/self-paced/part-time studies, and summer orientation sessions.

Undergraduate students. The Office of Undergraduate Admissions (http://admissions.unc.edu) serves students interested in continuing their education at the University of North Carolina at Chapel Hill. Applications from all students are accepted and considered with care and respect.

Admission to the University of North Carolina at Chapel Hill is competitive. Although all 16 public universities in North Carolina share the same minimum course and admission requirements, which are published on the University of North Carolina's Web site (http://www.northcarolina.edu), these minimum credentials do not guarantee admission to UNC–Chapel Hill, and successful candidates typically exceed them.

Graduate students. Admission to Graduate School academic programs (http://gradschool.unc.edu/admissions) is competitive and students are selected on the basis of their academic preparation, ability, and program fit. For some programs, an on-site preadmissions interview may be required. Early contact with your program of interest can be helpful in preparing your application.

GRADUATE ADMISSIONS

Welcome graduate applicants! We are pleased that you are applying for admission to the UNC–Chapel Hill Graduate School. Admission to Graduate School academic programs is competitive, and students are selected on the basis of their academic preparation, ability, and program fit. For some programs, an on-site preadmissions interview may be required. Early contact with your program of interest can be helpful in preparing your application.

For the most updated admissions information, please check The Graduate School's admissions Web site (http://gradschool.unc.edu/admissions). The Web site often is more up to date than this annual publication, so we encourage prospective students to begin there.

The Graduate School relies mainly on e-mail to communicate with all applicants. Therefore, please include a current e-mail address on your application and be sure to respond promptly to all correspondence.

Required Application Materials

Required materials for all applicants include

- Graduate School online application (https://applynow.unc.edu/apply)
- Application fee (http://gradschool.unc.edu/admissions/instructions.html#fee)
- Transcripts (http://gradschool.unc.edu/admissions/instructions.html#transcript)
- Current letters of recommendation (http://gradschool.unc.edu/admissions/instructions.html#ltrs)
- Standardized test scores (http://gradschool.unc.edu/admissions/instructions.html#tests)
- Statement of purpose (http://gradschool.unc.edu/admissions/instructions.html#purpose)
- Resume/CV (http://gradschool.unc.edu/admissions/instructions.html#resume)
- Supplemental information (any additional information or materials required by the program) (http://gradschool.unc.edu/academics/degreeprograms)

For international applicants only, the following additional materials are required:

- TOEFL or IELTS score (http://gradschool.unc.edu/admissions/instructions.html#toefl)

Once we have received all required application materials and fees, the review and evaluation of your application will begin. While the recommendations and test scores will likely arrive at The Graduate School at different times, it is your responsibility to make sure that the online application is submitted and the fee paid prior to the program's posted deadline.

Minimum Graduate Admission Requirements

The minimum requirements for admission to a graduate program are:

- A bachelor's degree (based on a four-year curriculum) completed before graduate study begins, or its international equivalent with an accredited institution
- An average grade of B (cumulative GPA 3.0) or better

Along with these minimal requirements, admission decisions are based on a number of factors, including academic degrees and record, written statement of purpose, letters of recommendation, test scores, and relevant work and research experience. All admission recommendations are made by each individual program or department.

The University of North Carolina at Chapel Hill
Admissions Appeal Procedure

Revised August 2016

This section sets forth the procedures to be followed with respect to the appeal of a negative admissions decision, including a decision to rescind an admission that has already been granted.

Appeal to Admissions Officer

Appeals concerning individual admission, or admission rescission, decisions may be had only if it is contended that a) a provision set forth in the University of North Carolina at Chapel Hill admissions policy ("admissions policy") has been violated or b) the decision not to admit the individual or to rescind admission resulted from a material procedural error in the admissions process. An applicant's omission of relevant information from the original application for admission will not ordinarily constitute grounds for an appeal; nor will academic or personal circumstances that changed after the submission of the application. Such an appeal shall be lodged by the applicant-appellant with the administrative officer (the director of undergraduate admissions, the dean of The Graduate School, the dean of the professional school concerned, or the dean of Summer School) whose office had responsibility for the admission in question (hereafter the "admissions officer") within 30 days after the University posts the appellant's online decision. The appeal shall be in writing and shall set forth the grounds for the appeal.

Upon receipt of the appeal, the admissions officer or the admissions officer's designee shall review the applicant-appellant's file and appeal letter and shall communicate his or her decision to the appellant in writing.

Appeal to Provost

The decision of the admissions officer may be appealed to the provost only if it is contended that a) a provision set forth in the admissions policy has been violated or b) the decision not to admit the individual or to rescind admission resulted from a material procedural error in the admissions, or appeal, process. An applicant's omission of relevant information from the original application for admission or from the appeal to the admissions officer will not ordinarily constitute grounds for an appeal; nor will academic or personal circumstances that changed after the submission of the application or the appeal to the admissions officer. Such an appeal shall be lodged with the provost by filing a letter of appeal specifying the grounds for the appeal within 15 days after the appellant has received the letter communicating the decision of the admissions officer.

The appeal shall be heard by the provost or the provost's designee, and the appellant, at his or her option, may appear in person or conduct the appeal by telephone. Following the hearing, the provost or designee will

communicate the decision to the appellant in writing. The decision of the provost is final, and no further appeal is available.

Application Process

Applications for admission to the UNC–Chapel Hill Graduate School are submitted via the online admission application (https://applynow.unc.edu/apply). All required materials listed above should be submitted according to the instructions provided. Your application will not be reviewed until the application is submitted and the application fee is received. By submitting an application to UNC–Chapel Hill, consent is granted to University staff to obtain any additional or missing information as needed, including campus safety information.

Application Deadlines

Please be aware that each program has a specific application deadline. Most programs admit students for the fall semester only, however a few programs allow spring or summer session admissions. Please see the listing of graduate programs and their application deadlines (http://gradschool.unc.edu/academics/degreeprograms) for accepted terms of entry.

Each offer of admission is specific for the term stated in the admission letter. If you do not register for classes or complete your first semester, you must apply again in a subsequent semester. Contact your intended program for questions about deferrals of admission offers.

Completed applications and nonrefundable application fees must be submitted before the program's application deadline. Applications will not be accepted for review or consideration after the posted graduate program deadline has passed. International applicants should apply early in order to allow sufficient time for financial and visa document preparation. The Graduate School recommends that international applicants submit a complete application no later than December 1.

Fellowship and Financial Aid Deadlines

Most of the financial support available to graduate students is based within individual programs. In addition, a limited amount of financial support is available from The Graduate School and is based upon nominations from individual programs. In order to allow sufficient time for your program to nominate you for Graduate School fellowships, it is recommended that your application be submitted by the fall Graduate School fellowships date. Please visit application deadlines (http://gradschool.unc.edu/academics/degreeprograms) for specific date information.

If your program continues to accept applications after the fall Graduate School fellowship date, you are still eligible for their program-based support. Contact your intended program for complete information about available graduate student financial support and relevant deadlines.

The University awards loans and tuition enhancement grants to graduate students who qualify, based on information provided in the FAFSA (http://www.fafsa.ed.gov) (Free Application for Federal Student Aid) form due March 1. For more information, please visit the Office of Scholarships and Student Aid (http://studentaid.unc.edu).

Campus Safety Information

Applicants for admission will be asked several questions regarding criminal pleas, charges and convictions, academic suspensions, and military discharges. If additional information is needed, you may be asked to submit information for a criminal background check, which requires a nominal fee. You must describe violations of law in your home country and in any other country in which you have resided. The term "law" includes codes, legal rules and regulations, and other criminal-type statutes or violations of municipal, local, provincial, state, federal, national, commonwealth, and other governmental jurisdiction. Failure to provide complete, accurate, and truthful information will be grounds to deny or withdraw your admission, or to dismiss you after enrollment. The same actions will occur if you fail to notify The Graduate School promptly in writing of such charges that occur at any time after you submit the application. Questions can be directed to The Graduate School's admissions contacts (http://gradschool.unc.edu/admissions/contacts.html).

TUITION AND FINANCIAL AID

Student Finances

Billing Policies

Charges for tuition and fees, on-campus housing, and meals are assessed on a semester basis. Billing statements will only be available online through the ConnectCarolina Student Center. Students are responsible for accessing their statements online and insuring they are paid on time.

Any past due charges will result in a hold on registration and transcripts. Students must pay past due balances from prior terms before they will be allowed to register for future semesters. Students registering after the first tuition bill of the semester must either prepay tuition and fees or provide documented eligibility of financial aid to the Office of the University Cashier.

Students who are receiving financial aid are eligible to request a student aid deferment to extend their payment due date until after the initial financial aid disbursement of the semester. Deferments (https://cashier.unc.edu/forms) can only be requested in ConnectCarolina by the student before the due date on the first bill of each semester.

It is extremely important for students to refer to the Office of the University Cashier Web site (http://cashier.unc.edu) prior to each term for announcements and up-to-date information, and to follow instructions concerning payment/deferment due dates to avoid registration cancellation.

Tuition and Fees

Tuition and fees (http://cashier.unc.edu/tuition-fees) for each academic year, including detailed information about the mandatory student fees, (http://cashier.unc.edu/tuition-fees/student-fees) are published on the Office of the University Cashier Web site. Additional fees such as incoming student, special laboratory, and other designated program and course fees also may be charged.

A late registration fee of $20 is charged for registration on or after the first day of class for a term.

Authorized Users

Federal law (FERPA (http://registrar.unc.edu/academic-services/uncferpa/#details-0-0)) restricts access to student information. Students can designate up to five people as authorized users (http://cashier.unc.edu/student-account-policies/authorized-users) to access their student account information, pay bills, and discuss the account with the Office of the University Cashier. Students and authorized users will receive a courtesy email notification each month when billing statements are available.

Payment Options

Payments can be made in person at the Office of the University Cashier, through the mail, or by check or credit card online. For up-to-date information on payment options, please visit the payments section (http://cashier.unc.edu/payment-options) of our Web site. Our returned check fee is $25.

Each student is responsible for payment of his or her University charges. If a third party sponsor will be paying the charges, the Office of the University Cashier must receive a written authorization from the third party well in advance so that a separate invoice can be sent to the proper agency or organization in order to ensure timely payment.

Financial Aid Refunds

The Office of the University Cashier encourages students who are receiving financial aid in excess of tuition, fees, housing, and meal plan costs to sign up for direct deposit (http://cashier.unc.edu/student-account-policies/refunds) as soon as possible. Excess funds from the account will be deposited to either a checking or savings account at the student's bank. Students should also promptly update their direct deposit information if there are any changes to their banking information.

Drop/Withdrawal Policies for Tuition and Fees

The last day to reduce a course load for credit on a student's financial account is the tenth day of the semester, commonly referred to as the "census date." Dropping the only course a student is registered for requires an official withdrawal.

In case of withdrawal from the University, tuition and fees will be prorated according to the withdrawal refund calendar posted on the Important Dates (http://cashier.unc.edu/tuition-fees/important-dates) section of our Web site for that semester. The last date for credit on a student's financial account for withdrawal is nine weeks after the first day of classes for the fall and spring semesters. If a student drops the only course he or she is taking, this constitutes a withdrawal from the University.

Fifty Percent Tuition Surcharge

Effective Fall 2010, undergraduate students seeking a baccalaureate degree at UNC—Chapel Hill are subject to a 50 percent tuition surcharge as required by the North Carolina General Statute Section 9.10.(b) §116-143.7. Session Law 2009-451. Further information about the Tuition Surcharge Policy can be found on the Web site for the Office of the University Registrar (https://registrar.unc.edu/academic-services/policies-procedures/student-rights/tuition-surcharge).

Tuition Guarantee Program

Under a North Carolina state law effective Fall 2016, students classified as North Carolina residents for tuition purposes in undergraduate degree programs at UNC system schools are eligible for fixed (or guaranteed) tuition for up to eight consecutive semesters (or ten semesters, if enrolled in an approved five-year program). Further information about the Tuition Guarantee Program can be found on the Web site for the Office of the University Registrar (http://registrar.unc.edu/academic-services/policies-procedures/student-rights/guaranteed-tuition).

Scholarships and Financial Aid

For Undergraduates

The University works to keep Carolina affordable for all students. Scholarships, grants, loans, and work-study funds are offered to help eligible students who cannot afford the full cost of attendance.

Detailed information on scholarships and student aid can be found at the Office of Scholarships and Student Aid (http://studentaid.unc.edu). Students and parents are also welcome to email aidinfo@unc.edu. We are here to help!

Applying for Financial Aid

The deadline for financial aid applications is **March 1**. Late applications are accepted, but earlier is better.

To apply for financial aid:

1. Complete the Free Application for Federal Student Aid (FAFSA) (http://fafsa.ed.gov)
   UNC school code 002974
2. Complete the CSS Profile (http://student.collegeboard.org/profile) (new students only, for University grants and scholarships)
   UNC school code 5816
3. Monitor UNC email and regularly check ConnectCarolina (http://connectcarolina.unc.edu) for updates.

If we need more information, we will notify you by email. The sooner you complete the application process, the more likely funding is available.

Aid is an annual process, so returning students should complete the FAFSA each year. The application is available by October 1 of the prior year.

Priority Deadline

Complete the FAFSA (http://fafsa.ed.gov) and CSS PROFILE (http://student.collegeboard.org/profile) by **March 1**. Late forms are accepted, but some sources of aid may be limited for later applicants.

Students should apply as early as possible, even before admission to Carolina in the case of new students. You must reapply with FAFSA by March 1 each year. You only need to complete the CSS Profile as an incoming new student one time.

Award Decisions

Financial aid offers generally begin in February, after admissions decisions are released. Students who apply after March 1 are notified as soon as we are able.

Types of Need-Based Financial Aid

Scholarships, grants, and work-study do not have to be repaid; loans require repayment. Aid awards will include as much scholarship and grant aid as possible, with remaining need met through loans, a work-study job, or both. Graduate and professional students will receive loans and/or work to meet any eligibility remaining after awards from schools or departments.

Students always have the opportunity to reduce or decline loans before accepting an aid offer, so budget carefully before borrowing. See our budgeting and borrowing guide (https://studentaid.unc.edu/types-of-aid/loans/budgeting) for details.

Eligibility for Need-Based Financial Aid

To be eligible for financial aid, a student must be enrolled and making satisfactory academic progress in a degree or eligible certificate program. Information about the Satisfactory Academic Progress Policy can be found at studentaid.unc.edu/sap.

Aid is restricted if a student is in default on a loan previously received for college expenses or owes a refund on a grant or loan from an earlier enrollment period. Both resident and nonresident students are eligible for financial aid, though different University policies may apply.

The Carolina Covenant

Covenant Scholars have the opportunity to graduate debt-free through a combination of scholarships, grants, and work-study. Covenant Scholars also have access to faculty and staff mentors, enrichment activities, and other personal support services.

The Carolina Covenant is offered to eligible undergraduates who have a family income at or below 200 percent of the federal poverty level and limited assets. No special application is necessary; eligible students will be notified after applying for financial aid. Details are on the Carolina Covenant site (http://carolinacovenant.unc.edu).

Federal Aid Programs

Rules for federal student aid are set by Congress. Eligibility is set by a federal formula that examines the income and assets of the student and family, household size, the number of people in college, taxes paid, and other factors. Scholarships and awards from private sources are also factored into the eligibility formula.

The Federal Pell Grant Program provides assistance to undergraduate students with demonstrated financial need. A Pell Grant will automatically be included as part of an eligible student's financial aid package.

More detailed information is available at the Federal Student Aid site (https://studentaid.ed.gov/sa).

University Scholarships and Grants

Undergraduate students are considered for UNC-funded scholarships and grants, which do not have to be repaid, based on a detailed analysis of family financial circumstances. This may include home equity, other income, and family assets that may not have been considered in the calculation of federal aid. Institutional scholarship and grant funds are often combined with federal aid to provide a total package of financial aid.

The University also offers scholarship funding to enroll certain students with exceptional financial need who are likely to contribute to the intellectual experience and diversity of the undergraduate student body, as well as funds to assist eligible students who are residents of North Carolina and members of an Indian tribe recognized by the state or the federal government. No separate application is required; students will be considered based on their aid application and UNC admissions application.

Merit Scholarships

Each year, the University offers a limited number of merit scholarships to entering first-year students. These highly competitive programs recognize academic achievement, leadership, commitment to service, and potential for success at the University. Some of these awards consider a combination of financial need and academic merit.

Because Carolina is a highly selective university, competition for merit scholarships is strong. Very few merit scholarships are awarded each year.

There is no separate application for UNC merit scholarships. Selection is based on the information provided in a student's admission application. Merit scholarship finalists will be notified in early February (for early admissions applicants) and late March (for regular deadline applicants).

The Morehead-Cain (http://moreheadcain.org) and the Robertson Scholars (http://robertsonscholars.org) programs are administered by private foundations and *do* require separate applications. Visit their Web sites for details.

More information about the University's merit scholarships — including the Johnston, Pogue, Carolina, and Colonel Robinson programs — can be found at the Scholars Program site (http://scholarsprogram.unc.edu).

Work-Study Employment

A limited number of work-study jobs are available to help students earn a portion of their University expenses. Most of these jobs are on campus, with a small number in community service agencies. Undergraduate

work-study jobs require an average of 10 to 12 hours per week, with wages that depend on the job.

Graduate students may be assigned work-study assistantships, with teaching and research responsibilities in their departments or schools. Eligible students can apply for a variety of work-study jobs to match their skills and interests. There is no separate application for undergraduate students; simply apply for financial aid by March 1.

Need-Based Loans

The University administers a number of student loan programs, both federal and institutional, which provide low-interest, long-term loans to undergraduate, graduate, and professional students who are eligible for aid. Most financial aid to undergraduate students includes loan offers, and the majority of aid to graduate and professional students is in the form of loans. Repayment of most loans begins six months after the student ceases to be enrolled at least half time.

After a student applies for aid, the Office of Scholarships and Student Aid determines which type of loan is most appropriate based on student need and available funds. More information on loan programs can be found at the Office of Scholarships and Student Aid site (http://studentaid.unc.edu/types-of-aid/loans).

Students always have the opportunity to reduce or decline loans when accepting a financial aid offer, so budget carefully (http://studentaid.unc.edu/budgeting) before borrowing. Contact aidinfo@unc.edu with any questions.

Non-Need-Based Loans

Students not eligible for need-based aid, or who require funds beyond available need-based aid, may apply for unsubsidized federal loans. Unlike need-based loans, these programs have higher interest rates, and interest is generally *not* deferred. Visit the Office of Scholarships and Student Aid loan site (https://studentaid.unc.edu/types-of-aid/loans/budgeting) for information about applying.

Federal Direct Unsubsidized Loans are available upon request, subject to borrowing limits. Overall loan limits and information about interest rates can be found through the Federal student aid website (https://studentaid.ed.gov/sa/types/loans/subsidized-unsubsidized/#how-much).

Parents of undergraduate students who do not receive need-based aid, or who need additional assistance, may apply for Federal Direct Parent PLUS Loans. More information about Parent PLUS Loans is available on the Federal Student Aid Web site (https://studentloans.gov/myDirectLoan/index.action).

Laptop Grants

All Carolina students are required to have a laptop computer. The University offers grants — in the form of a credit at Student Stores, which sells a variety of laptops — to cover the cost for qualifying first-year students who apply for financial aid.

You are welcome to combine the grant with your own money to purchase a more expensive laptop. But if you leave Carolina without completing a degree, the University keeps the computer.

Questions and Assistance

Financial aid counselors are eager to help. Visit the Office of Scholarships and Student Aid or email aidinfo@unc.edu to get in touch.

For Graduate Students

The Graduate School offers a variety of funding opportunities to assist graduate students. The Graduate School provides information and support to students applying for external fellowships, as well as providing fellowships and other direct financial support to graduate students, which supplements what the individual school or department provides. For updated information, please see The Graduate School's funding resources Web site (http://gradschool.unc.edu/funding).

Graduate Tuition Incentive Scholarship (http://gradschool.unc.edu/funding/gradschool/gtis.html)*:* Helps cover the remaining cost of in-state tuition for graduate students who are receiving external funding awards in support of their thesis or dissertation research

Graduate Student Opportunity Fund (http://gradschool.unc.edu/funding/gradschool/opportunityfund.html)*:* Assists students with small, nonrecurring, unusual and unexpected academic expenses

Graduate Student Transportation Grant (http://gradschool.unc.edu/funding/gradschool/transportationgrant.html)*:* Assists students with some of the transportation costs necessary for travel to a regional, national, or international academic conference or professional society meeting to present their dissertation research

The Graduate Funding Information Center (http://gradfunding.web.unc.edu) is a resource for graduate students seeking information on funding sources for independent research, collaborative projects, fellowships, program development, and other scholarly activities.

You are welcome to contact the Fellowships Office at gradfunding@unc.edu.

To receive alerts when funding opportunities are posted, subscribe to The Graduate School funding listserv (http://gradfunding.web.unc.edu).

Departmental Awards

Teaching and Research Assistantships

The majority of assistantships available to graduate students are awarded by academic schools and departments. Approximately 2,500 graduate, research, and teaching assistantships are available through specific departments. Graduate assistantships are also available through the University's various research institutes and centers. Stipends, responsibilities, selection criteria, and application and notification procedures vary from department to department. Applicants should discuss with the program to which they are applying the specific funding opportunities available to graduate students.

Federal/State Fellowships and Traineeships

A number of state and federally funded fellowships and traineeships are also available in some departments. Students must be pursuing graduate training in specified fields of study to be eligible for these awards. Interested students should request additional information from their academic departments.

Application Deadline

Prospective graduate students may indicate when applying for admission their interest in an assistantship and should discuss application deadlines with their prospective departments.

If you have questions about departmental awards, please contact the department to which you are applying (https://gradschool.unc.edu/academics/degreeprograms).

Financial Aid Regulations

To be eligible for financial aid programs administered by the Office of Scholarships and Student Aid (http://studentaid.unc.edu), a student must be enrolled in a degree program on at least a half-time basis, a United States citizen or permanent resident, making satisfactory progress toward completion of the academic program, and, if applicable, registered for Selective Service. The student may not be in default on a loan previously received for college expenses nor owe a refund on a scholarship, grant, or loan from a previous enrollment period.

Graduate students who wish to apply for financial aid to meet the costs of attending the University must complete the Free Application for Federal Student Aid (FAFSA). The application should be completed online (http://www.fafsa.ed.gov). In completing the FAFSA, the student must list UNC–Chapel Hill (code number 002974) as one of the schools to receive the FAFSA information. The information on the FAFSA will be analyzed by an agency contracted by the federal government. The agency will send information and an analysis of the student's eligibility for financial aid funds to both the student and to the Office of Scholarships and Student Aid.

A student should not wait for admission to a graduate program before applying for aid. An applicant should submit the FAFSA by March 1. If additional documentation is needed to complete a student's application for financial assistance, the Office of Scholarships and Student Aid will notify the student. A student who completes the file promptly can expect to receive notice of an award decision early in June.

GRADUATE EDUCATION

The Graduate Faculty

Graduate faculty members whose appointments are current as of the publication date of the *Graduate Catalog* are listed by academic rank in the department(s) in which they serve. Comprehensive listings of the graduate faculty may also be found on The Graduate School's Web site (http://gradschool.unc.edu/policies/faculty-staff/faculty).

Within the school and departmental sections of the *Graduate Catalog*, following the faculty member's name, where applicable, is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor. Areas of specialization are listed for each faculty member following the section number.

Course Numbers and Credit

Courses numbered 400–699 are for advanced undergraduate and graduate students; courses numbered 700–999 are for graduate students only. The unit of measurement in meeting degree requirements is the semester hour — that is, one hour of lecture or at least two hours of laboratory or field work a week per semester. The number of credits, or the value of the course in semester hours, can be found after the course title in the listings for "Advanced Undergraduate and Graduate-level Courses" and "Graduate-level Courses."

Grade Appeals

The procedure for grade appeals can be found in the *Graduate School Handbook*. Any questions regarding the grade appeals process (http://handbook.unc.edu/grading.html) should be directed to The Graduate School.

Orientation

The Graduate School sponsors a university-wide orientation program for new graduate students. Its goals are to

1. Acclimate them to the University community and
2. Provide information sessions on a range of topics relevant to graduate students such as broad campus resources, campus health facilities, Graduate and Professional Student Federation, and getting to know the local area.

Important reference materials and guides to the campus and Chapel Hill/Carrboro area community resources are available to students on The Graduate School's Web site (http://gradschool.unc.edu). These resources include the *Graduate School Handbook* (http://handbook.unc.edu), Academic Integrity and Ethics (http://gradschool.unc.edu/academics/resources/ethics.html), Thesis and Dissertation Guide (http://gradschool.unc.edu/academics/thesis-diss/guide), copies of University policies, and other helpful campus and community publications intended to be used throughout the student's graduate career. As orientation is a continuous process throughout a student's first year, The Graduate School also schedules a number of orientation workshops throughout the academic year on such topics as residency for tuition purposes, funding, and networking.

In addition to The Graduate School orientation, individual graduate and professional programs conduct department-based orientations for new students. Information regarding departmental orientations is available in the respective academic departmental offices.

Orientation and relocation information can be found on The Graduate School's Web site (http://gradschool.unc.edu). The Graduate School Office, open year-round, is located on the second floor of Bynum Hall. Graduate School staff are available to answer questions and help students find the resources they need to make the most of their Carolina experience.

Professional Development in Graduate Education

The University of North Carolina at Chapel Hill is committed to providing students with the highest quality graduate education. While this clearly entails academic training, it also includes a commitment to providing students with resources and services to enhance their graduate experience and to prepare them for their poststudent careers.

The cornerstone of professional development at Carolina is a series of workshops and selected one-credit-hour courses. These workshops cover topics designed to promote graduate student academic, professional, and personal growth. Sessions are designed to provide students with the opportunity to develop five areas of professional competency: communication, leadership, teaching and instruction, professional adaptability, and self-awareness. Additional information is available on the Web (http://gradprofdev.web.unc.edu).

Graduate Student Foreign Language Proficiency Assessment

The departments of Romance Studies, Germanic Languages and Classics offer foreign language proficiency assessments in French, German, Spanish, Italian, and Latin (classical or medieval) for graduate students needing to satisfy a departmental foreign language requirement. This service is offered once each semester. The Graduate School administers registration for these assessments. Registration and scheduling information (http://gradschool.unc.edu/academics/resources/gflpa.html) is available on the Web.

International Student and Scholar Services (ISSS)

International Student and Scholar Services (http://isss.unc.edu) promotes international educational exchange through its services and programs. ISSS serves as the principal administrative, programming, and advising office for approximately 2,500 international students, faculty members, and administrative staff at UNC–Chapel Hill, including research scholars and visiting professors. Located in the FedEx Global Education Center, ISSS issues and helps maintain visa documentation, provides advising related to immigration matters and adjustment to life in the United States, and serves as a liaison between international students and scholars, their departments, and governmental and private agencies involved in international education exchange. In addition to administrative and advising services, ISSS provides programming that helps international students and scholars maximize their experience at UNC–Chapel Hill. Programs include orientation, tax seminars, and various cultural programs. The center is a focal point for community service organizations, including the Host Family Program, Conversation Partners Program, Speakers' Bureau, and International Women's English

Conversation Group. It also administers the UNC Class of '38 Summer Study Abroad Fellowships.

ACADEMIC RESOURCES

Libraries

The University Libraries

The main humanities and social sciences collections of the Academic Affairs Library are housed in the Walter Royal Davis Library. Davis Library includes more than 900 open and closed carrels for assignment to graduate students, and an additional 1,950 lounge, carrel, and table seats for general use. The building also houses group study rooms, 11 lounges, a computer lab, and a number of special study areas. All students are also welcome to use the Louis Round Wilson Library, home of the University's special collections, as well as the Robert B. House Undergraduate Library and any of the specialized departmental libraries.

The University Libraries hold over 5 million bound volumes and nearly 4.5 million microforms, constituting one of the most important collections in the South. Additional information about the libraries (http://www.lib.unc.edu), as well as access to the online catalogs and to many electronic resources, is available online. Reference librarians at any of the UNC–Chapel Hill libraries are available to help graduate students locate materials, use print or online library resources, or tackle any question from the most basic to in-depth advice on research projects.

The University Libraries receive more than 100,000 periodicals and other serials annually, including the publications of professional associations and learned societies. The Academic Affairs Library also receives the publications of such organizations as the Smithsonian and Carnegie institutions, the Rockefeller Foundation, the Hispanic Society of America, and the Russell Sage Foundation, and of many universities, including foreign universities and academies.

The government document collections comprise a rich body of resources. The Academic Affairs Library is a regional depository for United States government documents and United Nations publications, as well as selected foreign government documents. Particularly rich are its files of federal and state publications; state legislative journals, laws, collected documents, colonial and state records, and records of constitutional conventions.

The libraries provide access to a wide array of online resources including indexes and abstracts, statistical materials and government data, and full text titles. Many titles may be accessed from home by members of the University community. The Davis Library Information Commons makes available state-of-the-art workstations for library research.

Departmental libraries containing collections for study and research are assigned to Art, Biology (Botany and Zoology), Chemistry, City and Regional Planning, Geological Sciences, Institute of Government, Information and Library Science, Mathematics/Physics, and Music. The Law Library, containing more than 300,000 volumes, is located within the School of Law at Van Hecke-Wettach Hall. It contains material useful to students of history and government.

In addition to the collections available in-house, the libraries provide access to a multitude of external resources. Materials that the libraries do not own may be borrowed through interlibrary borrowing. UNC–Chapel Hill students may obtain a Triangle Research Libraries Network (http://www.trln.org) card allowing them to borrow materials from Duke, North Carolina State, and North Carolina Central Universities. The valuable manuscripts of the State Archives of North Carolina (http://www.archives.ncdcr.gov) and the collections of the State Library (http://statelibrary.ncdcr.gov) at Raleigh are also nearby.

Special Collections (Wilson Library)

The North Carolina Collection (http://library.unc.edu/wilson/ncc) holds books, pamphlets, maps, newspapers, serials, broadsides, microforms, documents, recordings, and other materials relating to the state and its people, and ranging in date from the 16th century to the present. Two of its prominent collections are the Sir Walter Raleigh Collection, relating to the courtier and the era of Elizabethan exploration, and the Thomas Wolfe Collection of manuscripts and published items by and about the University's well-known literary alumnus. The Photographic Archives provide a visual record of people, places, and events throughout the state in negatives, prints, and postcards, including examples of all formats beginning with daguerreotype of the 1840s. The North Carolina Collection Gallery exhibits artifacts, art, and furnishings related to the history and culture of the state and the University.

The Manuscripts Department consists of several units. The Southern Historical Collection (http://library.unc.edu/wilson/shc) preserves private papers' letters, diaries, account books, broadsides, photographs, taped interviews, video documentation, etc. of individuals, families, and organizations of the region. University Archives and Records Management Services (http://library.unc.edu/wilson/uarms) houses the official unpublished records of the University created since its charter in 1789. The General and Literary Manuscripts Collection includes documents related to notable British writers and literary enterprises and to American writers from outside the South. The Southern Folklife Collection (http://library.unc.edu/wilson/sfc) houses extensive recorded music, field tapes, photographs, movie film, and other materials related to study and research in the field of folklore and popular culture, with emphasis on materials about the region.

The Rare Book Collection (http://library.unc.edu/wilson/rbc) includes books, pamphlets, broadsides, medieval and Renaissance manuscripts, and graphic images. Of particular interest are the Estienne Imprint Collection, the Bernard J. Flatow Collection of the Cronistas, the George Harper Collection of W. B. Yeats, the Archibald Henderson Collection of George Bernard Shaw, the William Henry Hoyt Collection of French History, the Bill Morgan Collection of Beat Literature, the William A. Whitaker Collection of Samuel Johnson and His Circle, and an array of collections supporting the study of 19th-century British, Irish, and American literature.

Health Sciences Library

The Health Sciences Library (http://hsl.lib.unc.edu) is the primary library for the University of North Carolina Schools of Dentistry, Medicine, Nursing, Pharmacy, and Public Health, and the University of North Carolina Hospitals. It also serves the health and biomedical information needs of the entire University of North Carolina at Chapel Hill, the North Carolina Area Health Education Centers (AHEC) system, and health personnel and researchers throughout the state.

Collections

The library has an excellent collection to support curricular, research, and patient care information needs, consisting of more than 300,000 volumes and more than 4,000 serial titles, and more than 3,000 electronic resources. The Health Sciences Library provides a growing collection of computer-based multimedia courseware, CD-ROMs, and customized computer-assisted instruction, and offers electronic reserves. Information about the collection is accessible through the Triangle Research Libraries Network (http://www.trln.org) online catalog. UNC-affiliated users have

free access to the majority of the library's collections, wherever and whenever they are needed.

Borrowing

Faculty, students, researchers, and staff of the University of North Carolina at Chapel Hill and the University of North Carolina Hospitals, as well as area health professionals, receive borrowing privileges upon application. The library provides photocopy services, article delivery service, and an interlibrary loan service for materials not available on campus. Borrowing privileges are also available to any North Carolina resident for a small fee.

Information Services

Librarians are available to aid users in locating information, to instruct in the use of library resources, and to provide additional help. Online search services, with access to MEDLINE and about 100 other databases, are also provided. Direct access to databases and full-text journals is offered through the library Web site free of charge; users can search MEDLINE, nursing and allied health literature, international pharmaceutical abstracts, public health community papers, and other databases from their workstations on and off-campus. These and other databases are also available in the library.

The Health Sciences Library coordinates the AHEC Library and Information Services Network (https://library.ncahec.net/about.php). This is a statewide network that supports information services for community-based health professions education. Students, faculty off-campus, and preceptors receive a variety of help through the Information Connection Service.

Help in using the library's services and collections is available online, via email, by telephone, and by appointment. Consultation services can be used to make an appointment with a library staff member to develop a search strategy for a thesis topic, to learn advanced literature search techniques, or to receive any other in-depth help needed. In addition, education services faculty offer a variety of instructional programs, including orientation, workshops, and course lectures, designed to teach information-management skills.

RESOURCES

For a list of UNC resources, please see the University's Resources Web site (https://studentsuccess.unc.edu/campus-resources).

Included in this section of the University Catalog are descriptions for some of the resources available to current and prospective students.

- Resources: Academic and Research (p. 29)
- Resources: Campus Life (p. 33)
- Resources: Career Planning (p. 40)
- Resources: Health and Wellness (p. 41)
- Resources: Service and Leadership (p. 43)

RESOURCES: ACADEMIC AND RESEARCH

Academic Advising Program

Lee Y. May, Ph.D., *Associate Dean*

Andrea Caldwell, M.S., *Senior Assistant Dean*

Allison Mitchall, Ph.D., *Assistant Dean*

Chloe Russell, M.A., *Assistant Dean*

Elizabeth O. Shuster, Ph.D., *Assistant Dean*

Alex Waldie, M.Ed., *Associate Director*

Spencer Welborn, M.S., *Assistant Dean*

Lora Wical, M.Ed., *Deputy Director, Senior Assistant Dean*

Marilyn J. Wyrick, M.A., *Senior Assistant Dean*

Kristin Richards, M.A., *Graduation Coordinator*

Advisors

Paige Abe, M.A.; David Adamson, M.F.A.; Cameron Allen, M.A.; Matthew Andrews, Ph.D.; Todd L. Austell, Ph.D.; Lisa Beisser M.B.A.; Alfreda Clegg, M.S.; Nicole Cobb, M.A.; Marcus L. Collins, Ed. D.; Jarrett Eason, M.S.; Melissa R. Edwards, B.A.; Anthony Hanson, M.A.; Adam Harris, M.A.; Kristen Hondros, Ph.D.; Michael Jahn, M.A.; Krystal Johnson, M.A.; Cliff Jones, M.Ed.; Hilary Lithgow, Ph.D.; George E. Maitland, Ed.D.; Robert Malekoff, Ph.D.; Susan Maloy, M.Ed.; Hollie Mann, Ph.D.; Kathleen McNeil, M.A.; Anna J. Millar, M.B.A.; Mérida Negrete, M.M., Musc.Ed.; Robert Palermo, M.A.; Adam Persky, Ph.D.; Valerie C. Pruvost, Ph.D.; Joy J. Renner, M.A., R.T.; Sarah Rowe, M.S.; Jessica Sadr, Ph.D.; Gidi Shemer, Ph.D.; Ken Shugart, M.A.; Eric Smith, B.A.; Lynn Tocci, M.A., M.S.W.; Jean-Paul Viray, M.Ed.; Linwood Webster, M.S.; Jonathan Weiler, Ph.D.; Hristiyana Zhelezova, M.A., M.Ed.

The Academic Advising Program (http://advising.unc.edu) serves all undergraduate students in the General College and the College of Arts and Sciences.

The charge of the Academic Advising Program is to assist students with all aspects of their academic planning while providing a foundation for appropriate academic decisions. Students are assigned a primary advisor but may see any advisor for their concerns. Advisors provide students with assistance and advice about options for course selection, maintaining required scholastic standards, and planning a complete educational program. Advisors help ensure that students are making satisfactory progress towards their degree. Advisors discuss choices about majors with advisees and help them identify appropriate courses to satisfy General Education and major/minor requirements. In addition, advisors explain academic policies, procedures, and regulations and provide referrals to appropriate campus resources as needed. Advisors' office locations, office hours, and contact information (http://advising.unc.edu) are posted online.

All first-year students and sophomores are enrolled in the General College and are assisted by advisors in the Academic Advising Program. During their junior and senior years, students pursue academic majors/minors either in the College of Arts and Sciences or in one of the professional schools. To enter a professional school, students must be accepted into the program and should consult admission information for that school.

As juniors and seniors, students may receive academic advice regarding major studies, course registration, graduate school, internships, and career opportunities from faculty advisors in their major department or curriculum offices, or from the professional school to which they have been admitted. Some departments and schools require students to meet with a departmental advisor each term before they can register for the next term. Students in majors/minors that are part of the College of Arts and Sciences should also consult with an advisor in the Academic Advising Program at least once each year to ensure that they are making acceptable progress toward meeting degree requirements, including General Education requirements. Consulting Tar Heel Tracker can help students keep track of requirements, anticipate "what-if" scenarios, and prepare for meetings with advisors.

Each student is ultimately responsible for selecting appropriate courses and complying fully with all published regulations and requirements.

To avoid problems with registration and to ensure graduation by the expected date, students are strongly encouraged to declare a major during their sophomore year or early in their junior year. Students who have not declared a major before registration opens for their sixth semester will not be permitted to register for their sixth semester until they have consulted with an advisor in the Academic Advising Program.

Center for Student Success and Academic Counseling

Marcus L. Collins, Ed.D., *Associate Dean and Director*

2203 SASB North; (919) 966-2143, (919) 962-7710.

CSSAC (http://cssac.unc.edu) is dedicated to promoting academic excellence and assisting students to achieve their academic and personal goals while enrolled at Carolina. Its constituent programs–Summer Bridge, Carolina Male Scholars, Peer Mentoring, and the Writing and Learning Center–provide support for students in developing the skills and strategies needed to achieve academic success and personal success. This commitment to student learning supports the University's mission to "teach a diverse community of undergraduate, graduate, and professional students to become the next generation of leaders."

CSSAC offers academic and personal support to all UNC–Chapel Hill students. We also support the University's commitment to diversity and in doing so sponsor programs and activities that promote academic excellence, increase retention, and improve the campus climate for diversity among our undergraduates.

The Peer Mentoring Programs

Erica Wallace, M. Ed., *Coordinator, Peer Mentoring and Engagement*

The Minority Advisory Program (MAP) consists of students with cumulative grade point averages of 2.5 or higher who volunteer to serve as peer mentors mostly to minority first-year undergraduates. These peer mentors provide academic counseling, bridge communication between CSSAC and first-year students, and assist them with their transition from high school to university life. CSSAC also oversees the peer mentoring program for Carolina Covenant Scholars and community college students participating in the Carolina Student Transfer Excellence Program (C-STEP). As with MAP, Carolina Covenant Scholars and C-STEP volunteers serve as peer mentors to first-year Carolina Covenant Scholars

and C-STEP participants to assist them with their academic and social transition to Carolina.

UNC Summer Bridge Program

Euna Victoria Chavis, B.A., *Coordinator, Summer Bridge*

The UNC Summer Bridge program is a six-week transition program that helps incoming first-year students adjust to Carolina by providing academic enrichment, community building and, co-curricular and experiential learning activities. Any student who has been admitted to UNC–Chapel Hill and is a North Carolina resident is eligible to apply. Summer Bridge students have the opportunity to engage in support programming throughout the academic year as well.

Carolina Male Scholars

Chris Faison, M.A., *Coordinator, Carolina Male Scholars*

A community designed to help males of color develop academically, socially, and professionally. Our current initiatives include mentor-coaching, monthly networking gatherings, Start Strong summer program, and a first-year male student retreat.

Hayden B. Renwick Academic Achievement (3.20) Recognition Ceremony

These ceremonies acknowledge primarily minority students who have excelled academically while attending UNC–Chapel Hill. Students achieving a cumulative grade point average of 3.20 or better are recognized each spring semester and awarded a certificate of achievement. Parents and friends are encouraged to attend this annual event. The ceremony is named after the late Hayden B. Renwick, associate dean in the Office for Student Counseling (OSC) in UNC's College of Arts and Sciences.

Learning Center

Kim Abels, Ph.D., *Director*

Robert Pleasants, Ph.D., *Assistant Director*

0118 and 2109 SASB North, (919) 962-3782.

The Learning Center (http://learningcenter.unc.edu) helps students optimize their learning strategies to meet all their academic goals at Carolina. To make an appointment with an academic coach or check out this year's event calendar, visit the Learning Center's Web site (http://learningcenter.unc.edu). The Learning Center regularly offers an array of programs and services popular with undergraduate students, including:

- **One-on-one appointments** with an academic coach. Coaching appointments provide opportunities for students to set personal academic goals and get support and accountability in the process.
- **Peer tutoring** for many introductory courses. Students can find drop-in support on Tuesday and Wednesday nights at Dey Hall or make an appointment for select courses.
- **STEM support**, including academic coaching and learning groups for BIOL 101, CHEM 101, CHEM 102, CHEM 261, MATH 130, and MATH 231.
- **Workshops** on topics such as metacognitive learning strategies, reading speed and comprehension, time management, and more.
- **Handouts and videos** (http://learningcenter.unc.edu/tips-and-tools) offering tips and tools to make students' academic lives easier.
- **Study groups and boot camps** providing opportunities to gather with other students to maximize study time and strategies.
- **Test prep resources** for GRE, GMAT, MCAT, and LSAT in partnership with The Princeton Review, at discounts of 20 percent.
- **ADHD/LD support**. Individual appointments and coaching groups are available.

Writing Center

Kim Abels, Ph.D., *Director*

0127 SASB North; 221 Greenlaw Hall; (919) 962-7710.

The Writing Center (http://writingcenter.unc.edu) helps students become stronger, more flexible writers. To make an appointment with a writing coach or to submit your draft online, visit the Writing Center's Web site (https://writingcenter.unc.edu). The Writing Center is a free service for students, offering:

- **One-on-one appointments** (https://writingcenter.unc.edu/about/writing-coaching) with a writing coach. Coaching appointments are 45-minute conversations with undergraduate and graduate students who are specially trained to support students' development as writers.
- **Online coaching** (https://wc-online.unc.edu/ota/app) services. Students can submit drafts online, specify their concerns, and request targeted feedback.
- **Feedback on any writing project** at any stage of the writing process. Students can work with a coach on everything from application essays to zoology lab reports. They can come in with nothing but ideas, with an outline, or with a draft. Coaches meet students where they are and help them move forward in the process.
- **Handouts and videos** (https://writingcenter.unc.edu/tips-and-tools) on the writing process, citation and sentence-level concerns, writing-specific assignments, and writing in specific disciplines.
- **Write Night events** designed to help students make substantial progress on their drafts at key points each semester.
- **English language resources** (https://writingcenter.unc.edu/esl) and language specialists who support the academic and social communication of Carolina's international students.
- **Volunteer opportunities**! With our Speaking Group (https://writingcenter.unc.edu/esl/speaking-groups) and U.S. English Pronunciation (https://writingcenter.unc.edu/esl/esl-mini-courses) class, Carolina students can build relationships and gain valuable exposure to global cultures.
- **Job opportunities** (https://writingcenter.unc.edu/about/english-402)! Undergraduate students can apply to work as writing coaches after taking ENGL 402 in the spring semester.

Library System

- Library hours (http://library.unc.edu/hours)
- Ask a question (http://library.unc.edu/ask)

Everyone is welcome in all campus libraries, including the House Undergraduate Library (open 24/5), Davis Library, the Wilson Special Collections Library, the Health Sciences Library, and libraries with various subject specialties. Your OneCard is your library card.

The libraries' Web page (http://library.unc.edu) provides direct access to many research materials including online books and journals, as well as information about places to study and experts who can help with

research on any topic. You can contact the Library (http://library.unc.edu/ask) through e-mail, chat, and text messaging services.

Special facilities at the University Libraries include state-of-the-art design and media production labs in the R.B. House Undergraduate Library; a makerspace with 3D scanning and printing at the Kenan Science Library; and the Davis Library Research Hub, with equipment and expertise for GIS, data visualization, and digital humanities.

Math Help Center

Miranda Thomas, Ph.D., *Director*

The Math Help Center (http://math.unc.edu/undergraduate/math-help-center), located in 237 Phillips Hall, provides additional instructional support for students enrolled in MATH 110 through MATH 233. The center is staffed by both graduate and undergraduate tutors who work with students in small groups or individually. The center's main purposes are to provide assistance and to increase the success rate for students in specific math courses.

Pre-Graduate School Advising

William Taylor, Ph.D., *Coordinator*

This resource is offered to students in the College of Arts and Sciences interested in pursuing graduate studies through the Pre-Graduate Education Advising Program (http://pregrad.unc.edu) in Hanes Hall (second floor). The program advises undergraduate students considering a graduate degree in various disciplines (sciences, arts and humanities, social sciences, and professional arenas). These advisors can help clarify the differences between a doctorate and a master's degree and the opportunities a terminal degree may offer. The program is primarily responsible for helping students considering graduate school understand what their next steps are in researching and applying to graduate programs, so that they can move forward independently and effectively. The advisors are happy to help students identify the departmental or curricular advisors, the director of undergraduate studies for their major, and other faculty members students should contact during their process.

Prehealth Advising

Mary-Charles Horn, M.A., *Health Professions Advisor*

UNC–Chapel Hill has no formal prehealth curriculum or major. Instead, students should choose one of the four-year B.A. or B.S. degree programs and incorporate appropriate prerequisite courses in their planning. Health profession schools/programs encourage students to major in what they are interested in studying; no specific majors are recommended. Students are strongly encouraged to visit the Health Professions Advising Office (Ground Floor, Steele Building) soon after entering the University to learn the latest course requirements and other preparations necessary to become an outstanding candidate for their health career of choice. The office gives advice about many professions, including allopathic medicine, osteopathic medicine, podiatric medicine, dentistry, nursing, pharmacy, physical therapy, physician assistant, veterinary medicine, optometry, chiropractic, and other allied health professions. Advising information, advising hours, and information about joining the pre-health information listserv may be found on the office's Web site (http://prehealth.web.unc.edu).

Prelaw Advising

William Taylor, Ph.D., *Advisor*

UNC–Chapel Hill has no formal prelaw curriculum or major. Instead, students should follow one of the four-year B.A. or B.S. degree programs. Most law schools do not require, or even recommend, that students major in any particular field; instead, most law schools prefer applicants who have pursued a course of study that gives a foundation for undertaking legal studies, with an emphasis on reading, writing, speaking, and analytical and critical thinking. However, a student wishing to practice patent law will need a degree in one of the sciences.

Prelaw students should emphasize academics. The campus Learning Center offers programs designed to help enhance reading skills. Students are encouraged to take advantage of this opportunity. Students also are encouraged to schedule an appointment on Handshake (https://careers.unc.edu/students/resources/schedule-appointment) with Dr. Taylor in Hanes Hall (second floor). They also may wish to visit the prelaw Web site (http://prelaw.unc.edu), where they can gain helpful information and join the prelaw listserv to receive important announcements.

Research Institutes and Centers

The intellectual life of the University and the research activities of undergraduates, graduate students and faculty alike receive valuable encouragement and support from a variety of institutes and centers. These institutes do not operate as instructional agencies within the University; rather, they serve to obtain financial and organizational assistance for the scholars who constitute their membership.

Most research centers and institutes can be found on the UNC Research Web site (http://research.unc.edu/units/a-z).

Scholarly Journals

The University has published scholarly journals since 1884, when the *Journal of the Elisha Mitchell Scientific Society* first appeared.

The following list contains some of the publications currently produced by the University's graduate and professional programs.

American Diplomacy (https://americandiplomacy.web.unc.edu). A journal for commentary, analysis and research on American foreign policy and its practice.

Annali d'Italianistica (http://www.ibiblio.org/annali). The mission of this publication is to promote the study of Italian literature in its cultural context, to foster scholarly excellence, and to select topics of interest to a large number of Italianists.

Carolina Papers in International Health and Development (http://cgi.unc.edu/about/history). A series of UNC–Chapel Hill graduate student working papers designed to promote scholarship in the fields of health and development and to raise awareness of such issues among international studies specialists.

Endeavors (http://endeavors.unc.edu). Features outstanding research and creative work undertaken by faculty and students at the University. Distributed free, the magazine reaches 8,600 on- and off-campus readers in an effort to engage others in Carolina research.

North Carolina Law Review (http://www.nclawreview.org). Published by the School of Law to stimulate research and publication by faculty and students.

Studies in the Romance Languages and Literatures (http://romlpub.unc.edu/ncsrll). For 60 years, this publication has supported and disseminated scholarship in the romance literatures.

The University of North Carolina Studies in the Germanic Languages and Literatures (http://gsll.unc.edu). An internationally renowned monograph series in the field of Germanic studies. gsll.unc.edu (http://gsll.unc.edu)

In addition, the University of North Carolina Press (https://www.uncpress.org) publishes the following journals

Social Forces, one of the best known journals in sociology and related fields.

The High School Journal, for educational practitioners and theorists nationwide.

Studies in Philology, publishing articles on British literature before 1900 and articles on relations between British literature and works in the classical, Romance, and Germanic languages.

Southeastern Geographer, publishing the academic work of geographers and other social and physical scientists since 1961.

Southern Literary Journal, premier publication devoted to the fiction, poetry, and drama of the American South.

Southern Cultures, dedicated to the exploration of what makes the South the South.

Early American Literature, journal of the Division on American Literature to 1800 of the Modern Language Association.

Appalachian Heritage, a leading literary magazine of the southern Appalachian region.

The University of North Carolina Press

The University of North Carolina Press (http://uncpress.unc.edu) is the primary publishing arm of the University in the scholarly field. In addition to its publication of the journals of research, it carries on a book publishing program of about 80 new titles a year. Electronic publications also are available. Although these books are the work of scholars from all parts of the world, the presence in the University of a professionally staffed book publishing organization, with facilities for the international distribution of works of scholarship, is a stimulus to research and writing by members of the University community. The Press' program is an important contribution to the development of that aspect of the University's service which has to do with the advancement of learning.

RESOURCES: CAMPUS LIFE

Campus Safety

285 Manning Drive (via Hardin Drive)
Monday - Friday, 7:30 a.m. to 5:00 p.m.
(919) 962-3951

UNC Police is committed to creating and maintaining an environment where students, employees, and visitors to campus can feel safe in this vital community. Through its philosophy of community-oriented policing (COP), the department strives to employ professionalism, problem solving, and innovative strategies to remain one of the premier public safety agencies in the nation.

Familiarize yourself with security resources such as the campus-wide network of emergency call boxes, Smart911, self-defense instruction, other crime prevention classes, and much more.

In addition, the University has the capacity to send emergency warnings by text message to students, faculty, and staff through its Alert Carolina initiative. The entire University community is encouraged to educate itself regarding UNC's emergency communications resources and to register cell phones for this method of communication by visiting the Alert Carolina Web site (https://alertcarolina.unc.edu).

The LiveSafe App provides students, faculty, and staff a direct connection to UNC Police so that everyone can easily communicate all their safety needs. Its easy-to-use features help you stay safe every day and enable us to better protect you. Benefits include the ability to share information, tips, and safety concerns with UNC Police via pictures, video, or audio messaging; easy access to call or message UNC Police to summon help; access to SafeWalk, a GPS-tagged monitoring feature that allows your friends and family to keep you virtually covered until you arrive safely at a destination; and easy-to-find information and location of safety resources on and off campus. To download and set up LiveSafe on your iPhone or Android phone, select "University of North Carolina Chapel Hill" as your affiliation and fill in your user profile.

UNC–Chapel Hill students and staff can learn how to respond in an active shooter scenario by attending a "Shots Fired" training presentation offered by UNC officers.

Concerns may be addressed at the following campus telephone numbers:

- General Information: (919) 962-3951
- Police Emergencies: 911
- Police Non-emergencies: (919) 962-8100

Carolina Housing

Student and Academic Services Building North
CB# 5500
450 Ridge Road
(919) 962-5401
housing@unc.edu

Carolina Housing (https://housing.unc.edu) works to provide convenient housing that is secure, inclusive and supportive. Students create a home in our on-campus communities, build lifelong friendships and develop skills for their current and future successes as they journey through their Carolina experience. Students are encouraged to work towards leaving their "HEELprint" on the larger University by connecting with resources, taking advantage of leadership opportunities and making a difference while they are Carolina students. By getting involved, students develop an identity with the larger University community, create social networks and find opportunities for intellectual, spiritual, physical, and occupational growth.

Carolina Housing is an integral part of the academic and social community at UNC–Chapel Hill. It is committed to providing an environment conducive to the educational, psychological, and social development of residents. It strives to build a community that balances respect for the individual as well as the rights and interests of the whole community. All members of the residence hall and apartment community — residents, staff, and visitors — are expected to act in a manner that demonstrates respect and consideration for those around them.

Carolina Housing offers a variety of academic success and engagement initiatives to help student staff and on-campus residents develop healthy academic habits and support systems that lead to student success. These initiatives include residential learning programs, academic advising in the residence halls, transitional programming for first-year students, faculty engagement programs such as Meals with Heels and the Scholar in Residence, individual community programming on academic success, and an experiential education course, EDUC 318. This holistic approach complements classroom experiences and lays the foundation for students to become better prepared to succeed in life beyond college.

Graduate Student Housing. Carolina Housing recognizes that the living needs of graduate and professional students are usually different from those of undergraduates. At Carolina, graduate and professional students can enjoy the benefits of being affordably close to classes, facilities, and events, and living in a community of fellow graduate students where the atmosphere is characterized by early quiet hours and respect for personal time and space.

Baity Hill Graduate and Family Housing is Carolina's on-campus community for graduate students providing apartment-style housing. The property houses students with families and graduate students with roommates. This one- and two-bedroom apartment community is situated on rolling hills adjacent to the campus. The apartments are within walking distance of the campus and are served by campus and city bus routes. Rental costs compare favorably with similar area housing.

Parking is available for graduate students on a limited basis, and a fare-free campus bus service offers several routes that connect the north, middle and south regions of campus. Find specifications for apartments by visiting the "Apartments" section of the Carolina Housing Web site (http://housing.unc.edu).

Generally, demand for on-campus housing for graduate students exceeds the supply. On-campus housing is not guaranteed for graduate students, although every effort is made to offer a space to all applicants. Returning residents have priority to re-contract for the following academic year before spaces are offered to new graduate students. Additional information is available in the "jApartments" section of the Carolina Housing Web site (http://housing.unc.edu).

Off-Campus Graduate Student Housing. Off-campus housing refers to any housing not owned and operated by the University of North Carolina at Chapel Hill. This category includes small group housing such as fraternities and sororities, as well as apartments, houses, and rooms. Two-thirds of the University's students live in the off-campus market. Students will find furnished and unfurnished units, as well as units

within walking distance to campus or spread throughout Chapel Hill and Carrboro.

Carolina Union

The Carolina Union (https://carolinaunion.unc.edu) creates safe, inclusive, and educational experiences that enable students to maximize their time at Carolina. "Carolina Union" is the term used for both the Frank Porter Graham Student Union Building and the University department that serves students in many areas of their cocurricular lives. Governed by a board of directors consisting of students and faculty, the Carolina Union's role is to unify the campus community by providing programs, services and facilities.

Cultural, educational, and social programs are planned and implemented by the Carolina Union Activities Board (https://carolinaunion.unc.edu/programs-orgs/carolina-union-activities-board) (CUAB).

The Union contributes to the educational mission of the University by providing cultural, social, educational and entertainment programs. The Union also provides many services for the University community, supporting and enhancing student organizations and the programs they create.

- Leadership Development (https://carolinaunion.unc.edu/depts-services/student-life-leadership)
- Event Services (https://carolinaunion.unc.edu/depts-services/event-services)
- Communications and Creative Services (https://carolinaunion.unc.edu/depts-services/communications-and-creative-services/who-we-are)
- Student Organizations (https://carolinaunion.unc.edu/depts-services/student-organizations)
- Student Activities Fund Office (https://carolinaunion.unc.edu/depts-services/student-activities-fund-office)

The Office of the Dean of Students

Student Academic Services Building North, Suite 1106
450 Ridge Road
(919) 966-4042

The Office of the Dean of Students (https://odos.unc.edu) provides support and assistance to the University of North Carolina at Chapel Hill community, empowering students to succeed in navigating the University environment. Its four pillars—Care, Collaborate, Celebrate, and Empower—inform its programs, services, and initiatives. The office often serves as a beginning point of contact for students, faculty members, staff, families, and community constituencies regarding various student concerns. It supports student academic, personal, and professional development through a combination of individual initiatives, innovative outreach programs, and cocurricular opportunities, as well as policy development and oversight.

Off-Campus Student Life

2100 Granville Towers Lane South
(919) 843-5827
offcampus@unc.edu (e-mail)
offcampus.unc.edu (http://offcampus.unc.edu) (Web)
offcampushousing.unc.edu (http://offcampushousing.unc.edu) (Web)

In alignment with the mission of Student Affairs at the University of North Carolina at Chapel Hill, Off-Campus Student Life (http://offcampus.unc.edu)is committed to educating all students (undergraduate, graduate and professional) in life skills related to living off campus and in the community. These skills include:

- Becoming responsible tenants and community members knowledgeable of city ordinances and community quality of life issues
- Making informed choices about housing and roommates
- Gaining proficiency in problem solving when landlord and roommate difficulties arise
- Understanding personal safety and responsibility

For many students, transitioning into off-campus housing is as much a part of their college experience as first moving into the residence halls. For graduate and professional students, living in graduate housing like Baity Hill or in the community (Chapel Hill, Carrboro, or beyond) during their entire time at Carolina fits with their place in life and needs as a post-college adult. But, there can be significant challenges when leaving the intentional structure of an on-campus living environment. We are here to help students navigate their way as successful neighbors in our greater Chapel Hill-Carrboro community. We advocate for and educate toward the development of students as knowledgeable, active, and responsible community citizens. Students living off campus and in the community have rights and responsibilities associated with their pursuit of an enjoyable and safe living experience. We provide services and educational opportunities to promote the understanding of these rights and responsibilities throughout the off-campus student population.

Fraternity and Sorority Life

3508 FPG Student Union, CB# 5210
(919) 962-8298
greeks.unc.edu (https://greeks.unc.edu) (Web)
twitter.com/uncgreeks (http://twitter.com/uncgreeks) (Web)
greeklife.unc@gmail.com (e-mail)

Fraternity and Sorority Life (https://ofslci.unc.edu) provides services, programs, and assistance to the 60 fraternities and sororities that make up the Chapel Hill Greek community. The office's mission is to enhance the academic experience, holistic development, and civic contribution of students by providing effective services and developmental opportunities that enrich the Carolina experience. Fraternity and Sorority Life advocates for the fraternal movement by educating, advising, and empowering fraternities and sororities and their members to live according to their organizational values and contribute to the University and greater community.

Information Technology Services

Web: its.unc.edu (http://its.unc.edu)
E-mail: help@unc.edu
Telephone: (919) 962-HELP (4357)
T: 711 NC RELAY

Information Technology Services (ITS) leads UNC–Chapel Hill in planning, implementing and maintaining the University's technology services. The ITS staff is dedicated to delivering reliable, secure and satisfying information technology solutions and experiences to the University community. ITS collaborates with a broad spectrum of faculty, student and staff stakeholders to ensure effective, efficient, and timely services that meet their needs.

2-Step Verification

its.unc.edu/2-step (https://its.unc.edu/2-step)

The main benefit of activating 2-step verification is a significant increase in protection of your account from hackers. We are all used to having one layer of security — our password — to protect our accounts. With 2-Step, if a criminal gets through the password layer, he or she will still need your phone or other second verification method to get into your account.

2-Step is required within ConnectCarolina to access W-2s and student financial information. Also, 2-step verification is required to use Office 365, including Heelmail.

Adobe Creative Cloud

adobe.unc.edu (http://adobe.unc.edu)

UNC–Chapel Hill provides all students and instructional faculty and staff with access to Adobe Creative Cloud, a package of creative desktop applications for digital imaging, design, web and video, plus online services and storage. Popular creative desktop and mobile tools available with Adobe Creative Cloud licenses include Photoshop, Illustrator, Acrobat Pro, and InDesign. These programs are utilized frequently in the classroom and are available at no additional cost to students. New students can activate their license by visiting adobe.unc.edu (http://adobe.unc.edu).

Carolina Computing Initiative

cci.unc.edu (http://cci.unc.edu)

As part of the University's coordinated technology plan, the Carolina Computing Initiative (CCI) aims to ensure that Carolina students, faculty, and staff have access to high-quality computers and exceptional support services. The CCI is one of a number of University initiatives to ensure that the academic community has the tools needed to prepare for 21st-century digital literacy. Undergraduate students are required to bring laptops that meet the minimum standards set by the University for their graduating class. Eight out of every 10 students choose a CCI laptop package to fulfill this requirement. Students who own a CCI model laptop receive the highest level of support available on campus, including on-campus hardware repairs and access to loaner laptops.

Many students who choose a CCI laptop package are eligible for assistance with purchasing the laptop. Laptop grants that cover the entire cost of the CCI laptop package are awarded to incoming students throughout the summer. New students can apply for this need-based financial aid by submitting the College Board CSS/Financial Aid Profile to UNC–Chapel Hill. For more information on the laptop grants, see http://cci.unc.edu/new-students/laptop-grant.

Why Standardize?

Adopting the University's computer standards offers students and families the most value for their money, the highest level of technology at the best price, and access to convenient and reliable support on campus. Standardization reduces the number of problems that would typically arise from using a variety of hardware, software, and operating systems. It also enables faculty members to more readily incorporate technology into into their instruction and that the technology-related disruptions will be kept to a minimum.

Why a Laptop for Your Student?

Portable laptops give students access to learning resources (online discussion forums, library resources, and class notes) and student services (grades, schedules and registration) anytime, anywhere.

Buying Your Student's Computer

The Tech Shop
(919) 962-8534

All CCI laptop package purchases are made through the Tech Shop, the technology division of UNC–Chapel Hill's Student Stores. For information on purchasing computers that meet the University's specifications, go to cci.unc.edu (http://cci.unc.edu).

First-Year Students

While first-year students are not required to purchase a Carolina Computing Initiative (CCI) laptop, the vast majority do (more than 80 percent on average). Students who opt to bring a different model laptop are still required to bring a laptop that meets the technology requirements specified by the University. For details on the University's laptop specification, visit cci.unc.edu/new-students/minimum-specs (https://cci.unc.edu/new-students/minimum-specs).

While software and operating system support is available for non-CCI laptops, the level of support for students who own a CCI laptop is much higher. Hardware support and loaner laptops are available on campus for students who own CCI laptops, while for non-CCI laptops, hardware support is the responsibility of the student. For more information about the advantages of owning a CCI model specifications, visit cci.unc.edu/new-students/why-buy-cci (http://cci.unc.edu/new-students/why-buy-cci).

Transfer Students' Minimum Laptop Specifications

Students are required to have a laptop that meets minimum specifications for their class year. All CCI computer models offered meet these requirements and are available for purchase by transfer students. For details on the University's laptop specifications, visit cci.unc.edu/new-students/minimum-specs (http://cci.unc.edu/new-students/minimum-specs).

Insurance and Warranty

Laptops purchased through the CCI come with a comprehensive, four-year protection plan that exceeds the coverage available under standard homeowners insurance and the manufacturer's warranty. This protection plan covers theft, accidental damage, and damage from a power surge, fire, or natural disaster while in the United States, Canada, and Puerto Rico. The policies include a $100 deductible per incident. International insurance is also available upon request. For more insurance and warranty information, visit cci.unc.edu/new-students/insurance-warranty (http://cci.unc.edu/new-students/insurance-warranty).

Printing

ITS Labs offers the Pharos Printing System. UNC–Chapel Hill fee-paying students are given an allotment of pre-paid pages on their One Card for printing each semester. Once the allotted pages have been used, students may purchase additional pages. In addition to campus locations, print stations can also be found in most on-campus housing communities. Students can print directly to these print stations by installing the CCI Printing software from shareware.unc.edu (http://shareware.unc.edu). They also can print from their laptop or smartphone by going to mobileprint.unc.edu (http://mobileprint.unc.edu). More

details on this service are available at cci.unc.edu/printing (http://cci.unc.edu/printing).

ITS Service Desk

The ITS Service Desk is the central point of contact for students who need assistance with technology issues. Students can receive help resolving software and hardware issues through the Service Desk's on-campus walk-in services, 24/7 phone services, live chat, or Web submission requests.

The ITS Service Desk attempts to resolve just about any technological issues that a student may have, but most often helps students with in-depth troubleshooting of software issues such as blue-screening, error messages, virus/malware issues and Microsoft Office issues; maintenance issues such as providing software upgrades to Windows and Mac operating systems and installation of UNC mobile-friendly printing software that allows printing from multiple locations on campus as well as installation of specialized software like SAS and ARC GIS that would be needed for advanced coursework.

Setups of phones and other mobile devices for UNC network and email use, assistance with internal sites such as ConnectCarolina and Sakai, as well as performance of hardware repairs for CCI-purchased computers (cci.unc.edu (http://cci.unc.edu)) are also a strong focus of the Service Desk.

Students can get further information about walk-in help site locations, tech support services, and tips through help.unc.edu (http://help.unc.edu) and through the Service Desk's social media content.

Walk-in locations, chat support, phone support information: help.unc.edu. (http://help.unc.edu)

Social Media: Facebook, Twitter, Instagram: @uncservicedesk

ResNET: Residential Networking, Education, and Technology

The ITS ResNET team is responsible for providing on-site technology support and education for on-campus residents and Carolina Housing. The ResNET program, one of the largest in the nation, is comprised of 53 student employees who live in the residence halls. ResNET RCCs help on-campus residents with any technology questions, device setup requests, support high-speed wired and Wi-Fi networking, and maintain device installations in Carolina Housing spaces. ResNET also has four full-time staff to support the systems and processes that run Carolina Housing.

Note: Granville Towers residents receive internet services from a third-party company and should contact Granville for more details.

Tech Fairs

Each semester ResNET hosts 30+ Tech Fair events in the residence halls. Residents can visit to have their computers cleaned and updated, and technology questions answered. ResNET also provides information about technology initiatives across campus, and brings items like 3D printers and XR headsets for residents to experience new technologies in person.

Cable Television

Students living on campus have access to high-quality cable television service with 100+ television channels. On-campus residents also have access to cable via the streaming service Stream2. Support for residence hall cable television service is provided by ResNET and Stream2. For more information, or to view the cable television channel line-up, visit help.unc.edu (http://help.unc.edu) and search for CABLE.

Download CarolinaGO

CarolinaGO, the University's official mobile app, is a collaboration between ITS and student leaders. With CarolinaGO, students can access a mobile version of ConnectCarolina, check dining hours, find bus schedules, check CCI printing availability, and more. A walking directions module also makes it easy for new students and families to navigate campus. Search "CarolinaGO" in the iTunes and Google Play app stores to download.

Stay Up-to-Date with ITS

During the course of the academic year, technology changes and/or unplanned outages sometimes occur. ITS encourages students and family members to follow ITS on Twitter @UNCTarHeelTech**.** ITS posts upcoming maintenance windows, technology changes, outage information, training information, and more.

The James M. Johnston Center for Undergraduate Excellence

225 Graham Memorial
218 E. Franklin Street
(919) 966-5110

The James M. Johnston Center for Undergraduate Excellence (http://honorscarolina.unc.edu/johnston-center) is a "democracy of learning" open to students, faculty, alumni, and visitors from all corners of the Carolina campus and beyond. The mission is to encourage undergraduates' active engagement with research, scholarship, and artistic endeavor; to promote innovative teaching; and to provide a social setting in which students can engage in thoughtful discussions with professors and classmates.

The Johnston Center houses Honors Carolina (http://honorscarolina.unc.edu), the Office of Burch Programs (http://honorscarolina.unc.edu/fellowships/burch-fellowship) and Honors Study Abroad (http://honorscarolina.unc.edu/global-honors), the Office of Distinguished Scholarships (http://honorscarolina.unc.edu/ods), the Office for Undergraduate Research (http://honorscarolina.unc.edu/research), the Robertson Scholars Program (https://robertsonscholars.org), and the Beasley Multimedia Center.

The Johnston Center's student-faculty advisory committee advises its director on all aspects of programming and planning.

LGBTQ Center

Student Academic Services Building South, Suite 3308
385 Manning Drive
(919) 843-5376
lgbtq@unc.edu

The Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Center (https://lgbtq.unc.edu) works to foster a welcoming and inclusive environment for UNC–Chapel Hill community members of all sexual orientations, gender identities, and gender expressions. The LGBTQ Center offers educational programs such as Safe Zone, social events such as Center after Dark on Wednesday evenings, and direct support and advocacy to students, staff, and faculty.

Minority Male Mentoring and Engagement

Student Academic Services Building North, Suite 2203
(919) 966-5245
Christopher Faison (cdf@unc.edu), M.A., *Coordinator*

The Minority Male Mentoring and Engagement (http://menofcolor.unc.edu) initiative, housed in the Center for Student Success and Academic Counseling (http://cssac.unc.edu) (CSSAC), develops, implements, and assesses programming for minority males. It focuses on mentoring and promoting academic success and engagement, especially for students after their first year at the University. The coordinator trains and supervises graduate/professional students, faculty and staff members, alumni, and members of the community to engage and mentor undergraduates in high impact activities. Additionally, this initiative provides a clearinghouse for University-wide efforts tailored to undergraduate, underrepresented males of color. See the Men of Color Engagement (http://menofcolor.unc.edu) Web site.

New Student & Family Programs

Student Academic Services Building South, Suite 3318
(919) 962-8304
newstudents@unc.edu

The mission of New Student & Family Programs (NSFP) is to provide new undergraduate students the information and activities needed to transition smoothly to the University of North Carolina at Chapel Hill, and to promote an ongoing relationship between the families of all current undergraduate students and the University in support of their students' success at Carolina.

To fulfill this mission, New Student & Family Programs provides a number of transition programs and services, communications for new students and families, and student leadership opportunities.

All new first-year and transfer students (and their families) attend New Student Orientation prior to their first semester at Carolina. The transition process continues when students arrive each fall with a variety of Tar Heel Beginnings program offerings, including Week of Welcome. NSFP is also home to several transfer student initiatives, including the Tar Heel Transfers student organization, Tau Sigma honor society, and Transfer Student Ambassador Program.

NSFP's family programming includes Carolina Family Weekend each fall, regular communications through our UNC Family Experience portal, and family engagement opportunities, including the Carolina Parents Council.

NSFP provides a number of student leadership opportunities with five student employee teams, including our Orientation Leaders, the Tar Heel Beginnings Board, Transfer Student Ambassadors, Project Coordinators, and our Undergraduate Fellows.

Student Affairs

Carr Building
230 East Cameron Avenue
(919) 966-4045
studentaffairs@unc.edu

Student Affairs (https://studentaffairs.unc.edu) serves the University of North Carolina at Chapel Hill in collaboration with academic programs by providing transformational opportunities for students in the areas of student life, health and wellness, leadership and service, and diversity.

The importance of the learning process is paramount at the University of North Carolina at Chapel Hill. Student Affairs provides many services and programs that encourage and support the learning that takes place beyond the classroom. These departments and programs aim to assist students in integrating the various aspects of their lives so as to promote learning, self-awareness, self-determination, and broadened perspectives on the world. Student Affairs departments and programs afford students the opportunity to gain knowledge and develop skills to improve performance inside and outside the classroom; to enhance leadership potential; to find opportunities to serve fellow students and the community; to explore, plan, and prepare for a career; to plan for an active and rewarding life; to develop citizenship; and to improve interpersonal and life skills.

While Student Affairs offers programs designed primarily for undergraduate students, The Graduate School, on its own and in conjunction with various Student Affairs offices, offers programs and services intended to specifically address the needs of graduate and professional students.

The Office of the Vice Chancellor coordinates Student Affairs programs and provides guidance and leadership for its departments. The office also acts in a consulting role for faculty, administrators, and students who wish to raise issues that concern the University community, with a particular focus on student needs.

Student Dining Services

Carolina Dining Services (https://dining.unc.edu) operates 10 separate dining facilities at UNC—Chapel Hill. Meal purchases can be made with the UNC One Card using a meal plan, Dining Flex, Ã la carte, expense, or cash. All meal purchases made with the UNC One Card are not subject to the 6 percent North Carolina state sales tax on such items. Cash purchases are taxable. To find out more about acquiring a UNC One Card, visit the One Card Office Web site (https://onecard.unc.edu) or the UNC One Card office on the third floor of UNC Student Stores.

Students can use their meal plans at several of the campus all-you-care-to-eat dining facilities. Top of Lenoir is an award-winning facility with an array of menu choices. The Rams Head Dining Hall is a 30,000 square foot state-of-the-art facility that includes several restaurants and all-you-care-to-eat venues.

Carolina Dining Services offers several meal plans that offer the convenience and value of purchasing meals on campus ahead of time.

Student Government

The by-laws of the Board of Trustees of the University invest in the chancellor of the University "the duty . . . to exercise full authority in the regulation of student conduct and in matters of student discipline." At the same time the chancellor has delegated authority to exercise disciplinary and administrative functions in student life to agencies of student government. Within the context of this delegated authority and responsibility, the student body at the University has been self-governing for decades.

Student government at Carolina is more than 100 years old, and hundreds of students are involved in the various branches every year. From serving on the Board of Trustees to the appropriation, oversight, and authority of student fees, from instituting governmental service to enforcing the Honor Code, student government affects the life of every student every day.

The entire framework of student government's activities rests on its ability to maintain the foundation of administrator-student relations. The University should serve as an advisor, not as a supervisor, to the student body. To enjoy this freedom, students at Carolina must be willing to take a certain amount of responsibility to develop their own community and community values. Student government serves to maintain this freedom and the advisory, not supervisory, relationship.

In 1876 the Honor System officially ended all vestiges of the monitorial system; in 1904 a judicial body, the University Council, was established; in 1938 the Student Legislature was established; and in 1946 a written constitution was approved. In 1968 the coeducational Honor Court was formed out of the Men's Court and Women's Court to hear all Honor Code cases. The *Instrument of Student Judicial Governance* was ratified and put into operation in 1974, was significantly revised in 2003, and then amended in 2015 and 2017.

Student government at UNC–Chapel Hill approximates the federal system of government with its three branches: an executive branch, a legislative branch, and a judicial branch.

The Executive Branch of Student Government

This group (http://execbranch.unc.edu) serves as the official voice of the student body to the University and broader community, including the town of Chapel Hill and the state of North Carolina. Heading the executive branch is the student body president, assisted by the vice president, the president of the Graduate and Professional Student Federation, student body treasurer, student body secretary, the chief of staff, and the senior advisor. As determined by and reflective of the needs of the student body, the president structures his/her cabinet and committees and makes appointments to a wide range of University committees that address those needs and other concerns as they arise during the year. These committees usually include hardship parking, elections board, University services, information technology, student life, minority affairs, first-year focus council, and public service.

Legislative Branch

Student Congress (http://congress.unc.edu) is unicameral, consisting of 41 representatives elected by the student body, with the student body president and the student body treasurer serving as nonvoting ex officio members. The speaker of the Student Congress is elected from among the 41 representatives. Graduate and professional students and on- and off-campus undergraduates are proportionally represented in the Congress.

Student Congress handles considerable legislation and, as one of its primary responsibilities, oversees the student activity fees budget and other student fee areas. Established by student and University committees before approval by the Board of Trustees, a predetermined amount of the fees paid by each student provides the source of funds for Student Congress's annual allocation and subsequent appropriations budgets. These funds are allocated to petitioning student organizations that have received official University recognition. The student body can petition for changes in the student activities fee at any time.

Student Congress representatives are elected in the spring for one-year terms, and each member serves on one of three standing committees: finance, rules and judiciary, and student affairs. A fourth committee, ethics, is composed of senior members of the Congress.

Judicial Branch

There are two major areas that comprise the judicial branch; the first is responsible for the *Instrument of Student Judicial Governance*, and the second is responsible for resolving issues related to the Student Code (http://congress.unc.edu/student-code).

The Honor Court hears all cases involving potential violations of the Honor Code. There are separate courts for undergraduate students, graduate students, and students in the Schools of Law, Medicine, Dentistry, Pharmacy, and Business. The Honor Court is organized as follows:

- Office of the Student Attorneys General: The appropriate (undergraduate or graduate) student attorney general investigates all potential violations of the Honor Code. Staff members also present cases to the Honor Court and assist students accused of violating the Honor Code.
- University Hearings Board: These boards are made up of faculty, staff, and students. The University Hearings Board generally hears appeals of Honor Court cases.
- Students interested in serving on the Honor Court or the student attorney general's staff should contact the Honor System Office at (919) 966-4084 for information about how to apply.
- Student Supreme Court: This court adjudicates all issues of student constitutional law to be decided under the Student Code. This body most closely fills the traditional judicial branch of government and consists largely of students with previous experience in student government, mediation, and/or law.

For Graduate Students

The Graduate and Professional Student Federation (GPSF) (http://gpsf.unc.edu), the official representative of graduate and professional students at the University, is organized based on school, departmental, and curricula organizations. The GPSF provides communication between graduate and professional students, represents graduate and professional students both within and outside the University community, and provides structures capable of dealing with ongoing issues and concerns. It also allocates and administers the funds appropriated to it from student fees. Every duly enrolled graduate and professional student is automatically a member of the GPSF.

Transportation and Parking

Public Safety Building at 285 Manning Drive (via Paul Hardin Drive)
(919) 962-3951
Weekdays 7:30 a.m. to 5:00 p.m.

Transportation and Parking (https://move.unc.edu) is an essential part of UNC and is responsible for coordinating all traffic, parking, and transportation around campus.

Parking

Every student at UNC–Chapel Hill who parks an automobile on weekdays in University parking areas is required to obtain and display a parking permit. Parking permit holders must park only in specific zones as indicated on their parking permits. Please note the signs at the entrances to each lot which detail the hours of enforcement for that parking area.

Students, excluding first years, may apply for parking permits during online registration procedures (https://move.unc.edu/parking/student-parking) or at the UNC Transportation & Parking offices in the Public Safety Building. Vehicles found parked illegally may be cited by Transportation & Parking's Parking Control Division, and subsequent violations may result in further citations, immobilization ("booting"), or towing of the vehicle. Citations may be appealed through UNC Transportation & Parking's Appeals Office within 10 calendar days upon

receipt of the citation. Citations can be appealed in person during office hours Monday through Friday from 7:30 a.m. to 5:00 p.m., online (https://move.unc.edu/account), or by regular mail.

The Parking Control Division operates MAP, the cost-free Motorist Assistance Program. At all times, including University holidays, if a vehicle requires a jump start or if the keys are locked inside the vehicle, motorists may call for assistance at (919) 962-8100.

The Commuter Alternative Program

The Commuter Alternative Program (https://move.unc.edu/cap) (CAP) is designed to reward UNC employees and students for the use of bicycling, walking, transit, and ridesharing. CAP is only available to off-campus students who do not have a parking permit. CAP offers prizes, discounts from local merchants, and other benefits to all members.

Local and Regional Transit

The University, Chapel Hill, and Carrboro work together to provide the fare-free Chapel Hill Transit (http://www.townofchapelhill.org/town-hall/departments-services/transit) system. No bus pass is needed when boarding a Chapel Hill Transit bus, and anyone can ride. Campus U route and RU (Reverse U) shuttles run in continuous loops from 7:00 a.m. to 8:00 p.m., serving nearly every area on campus.

Commuting students can use any of the Park & Ride lots served by Chapel Hill Transit. All Park & Ride lots require a permit, which may be purchased through UNC (https://move.unc.edu/transit/park-ride) or through the Town of Chapel Hill (http://www.townofchapelhill.org/prlots). In the case of an emergency, UNC–Chapel Hill's Emergency Ride Back service is available to provide transportation to the Park & Ride lots or any location within Carrboro or Chapel Hill municipal boundaries.

Regional transit to RDU Airport, Raleigh, Durham, Hillsborough, and other nearby cities is available through GoTriangle (formerly Transit Transit). Bus service to Alamance, Guilford, and Chatham counties is also available, and all regional transit agencies provide free Park & Ride (http://move.unc.edu/transit) lots.Get transit directions using Google Maps (https://transit.google.com) and see buses in real-time online (http://triangle.transloc.com) or by downloading the TransLoc Rider app. For more route information, call GoTriangle at (919) 485-RIDE or visit the GoTriangle Web site (https://gotriangle.org).

Point-to-Point

Point-to-Point (http://move.unc.edu/p2p) (P2P) offers fare-free, fixed-route service aboard the P2P Express buses, operating on a continuous loop around campus during evening hours, 7:00 p.m. until 4:00 a.m., seven nights a week when residence halls are open during fall, spring, and summer semesters. Students must show their UNC OneCard to board the P2P Express. After dark, a demand-response van can be accessed by students in areas that are not served by the P2P Express route. P2P also offers fare-free, demand-response transportation service to disabled students and students going to or from Campus Health Services 24 hours a day. It also offers additional services including the fixed-route P2P Shuttle serving Baity Hill, an airport shuttle to RDU for select school breaks, and more. On-demand services can be requested with the TransLoc Rider app.

Safe Ride

Safe Ride, operated by Chapel Hill Transit (http://chtransit.org), aims to provide increased mobility between 11:00 p.m. and 2:30 a.m. There are three Safe Ride bus routes operating on Thursday, Friday, and Saturday nights. They provide service between campus and many private student housing developments, as well as other off-campus destinations.

UNC Bicycle Registration

Bicycle registration is required for bicycles on campus. The program serves as a deterrent to crime, aids in the identification of lost or stolen bicycles, and enables UNC to plan for improved bicycle parking facilities around campus in the future. All students who register their bikes will receive a 50-percent-off coupon for a u-lock from UNC Student Stores. Forms for the free bicycle registration are available online (http://move.unc.edu/bike) or at the Public Safety Building. Cyclists who live off-campus may join the Commuter Alternative Program.

ShareTheRideNC Rideshare Matching

ShareTheRideNC (http://unc.sharetheridenc.org) is an easy way to share the seats in your car or catch a ride. The UNC–Chapel Hill private ShareTheRideNC community allows you to find friends, classmates, and coworkers going the same way you are. ShareTheRideNC helps you offer or request rides for commutes, road trips, and popular events. If you have a car, split costs by offering rides. If you don't have a car, find rides where you need to go.

Zipcar

UNC–Chapel Hill introduced Zipcar (http://www.zipcar.com/unc) to campus in 2004 to provide cars on demand by the hour or day. Since then, students, faculty members, and staff from UNC–Chapel Hill have been taking advantage of this car-sharing program by self-reserving Zipcars on campus, 24 hours a day, seven days a week, through online and mobile devices.

For More Information

Concerns may be addressed at the following campus telephone numbers:

- General Information (919) 962-3951, 3952
- Parking Control (919) 962-8006
- Accounts Receivable (919) 962-3951
- Parking Appeals (919) 962-3951
- Point-to-Point Shuttle Dispatcher (919) 962-7867 (962-"P-TO-P")
- Commuter Alternative Program (919) 843-4414

Students with temporary physical handicaps or other hardships requiring special consideration should contact Accessibility Resources & Service (http://accessibility.unc.edu) for complete information on transportation options.

RESOURCES: CAREER PLANNING

University Career Services

219 Hanes Hall
204 E. Cameron Avenue
ucs@unc.edu

The mission of University Career Services (http://careers.unc.edu) (UCS) is to support the mission of the University and Student Affairs by providing personalized an innovative career education to empower student success and transformation. Our vision is for all UNC–Chapel Hill students to create lives of purpose and prosperity in alignment with their personal goals.

USC services for both undergraduate and graduate students include workshops, one-one-one career coaching meetings, full- and part-time job and internship opportunities online (Handshake (https://careers.unc.edu/students/resources/handshake)); CliftonStrengths and other assessments; and many print and electronic resources. Our programs include career panels and fairs, industry nights, and pre-graduate and law school exploration programs.

Services are limited to enrolled students in a UNC–Chapel Hill degree program and alumni for six months after graduation. Students in law, dentistry, and medicine and students enrolled in the M.B.A. and M.A.C. programs are served by career services in their departments, rather than by UCS.

Office hours are from 8:00 a.m. to 5:00 p.m. Monday through Friday.

RESOURCES: HEALTH AND WELLNESS

Accessibility Resources and Service

Accessibility Resources and Service (https://accessibility.unc.edu) (ARS) supports the University's commitment to accessibility. In consultation with faculty members, staff, and students, ARS works to identify and eliminate barriers that limit a student's ability to independently meet the demands of University life. Individual needs are addressed on a case-by-case basis through the provision of reasonable accommodations that allow the University to maintain the integrity of its programs and services.

In the first instance, prospective and existing students are invited to connect with ARS through the submission of a self-identification form and documentation (https://ars.unc.edu/students/new-applicants/connect-ars).

ARS is located in the Student Academic Services Building North (Suite 2126) between the Rams Head Center and Morrison Residence Hall. Office hours are 8:00 a.m. to 5:00 p.m. Monday through Friday. ARS staff can be contacted by email at ars@unc.edu or by (ars@unc.edu) telephone at (919) 962-8300 (V) (TTY-711 [NC RELAY]), and more information is available on the ARS Web site (https://ars.unc.edu).

Campus Health Services

Campus Health Services (http://campushealth.unc.edu) (CHS), located next to Kenan Stadium in the James A. Taylor Building, provides a broad range of health care services including primary care, orthopedics, obstetrics and gynecology, nutrition services, dermatology, travel information and immunization, and allergy management. For convenience, in-house laboratory, radiology, pharmacy, and physical therapy services also are available. CHS also provides counseling and psychological services; please see the Counseling and Psychological Services section for greater detail about services offered.

Eligibility

Any student or postdoctoral fellow who has paid the campus health fee for the current semester or summer session is eligible for health care at CHS. Spouses of full-time students and postdoctoral fellows can receive care at CHS.

Health Fee

Currently, the fee covers the cost of most professional services (there is no charge for office visits) provided by CHS physicians, nurse practitioners, physician's assistants, nurses, physical therapists, and registered dieticians. The health fee also provides reduced charges for prescription drugs, miscellaneous supplies, laboratory tests, X-rays, medical procedures, and specialty services. Spouses of students are eligible to receive the same services as students by paying the campus health fee at CHS and demonstrating appropriate insurance coverage.

Hours

Hours of operation vary according to the academic calendar. Hours of operation during the academic year are 8:00 a.m. to 6:00 p.m. Monday through Friday. Students are typically seen on an appointment basis from 8:00 a.m. to 5:00 p.m. Acute care services are provided between 8:00 p.m. and 6:00 p.m. Monday through Friday and from 8:00 a.m. to 5:00 p.m. on Saturday and Sunday during the fall and spring semesters. Weekend acute care services are considered premium services and there is an associated visit charge. Hours of operation in the summer are 8:00 a.m. to 5:00 p.m. Monday through Friday. If CHS is closed, students have access to a nurse advice line through UNC Healthlink, and there is always a CHS physician on call. Call (919) 966-2281 to verify hours of operation, schedule an appointment, or to speak with the Healthlink nurse when CHS is closed.

Immunizations

North Carolina law mandates that all new students at the University document the completion of immunization requirements. Failure to comply may result in cancellation of registration 30 days after classes begin. Vaccines are offered at Campus Health Services at reasonable rates for students who need to complete their immunization requirement.

Mandatory Health Insurance

The University requires proof of health insurance as a condition of enrollment. The University offers a group health insurance plan, including major medical benefits to single and married students, their spouses/partners, and children.

Campus Recreation

Campus Recreation offers amenities for all fitness and recreation wants, needs, and desires of the UNC population. It provides a diverse and intentional recreational program in a safe, inclusive, and accessible environment which enhances the social, mental, and physical well-being of the entire University community. Campus Recreation enjoys a unique dual reporting relationship with the Department of Exercise and Sport Science (EXSS) and its rich history and commitment to a healthy and active lifestyle, and with Student Affairs, which represents the Carolina spirit of student development and learning outside the classroom.

Facilities

Campus Recreation offers a variety of facilities to satisfy the wants and needs of all UNC students, faculty members, and staff. The two fitness centers, the Student Recreation Center and Rams Head Recreation Center, offer cardiovascular and weight training equipment, as well as an indoor track, locker rooms, and group fitness studios. Basketball, squash, and racquetball courts, along with equipment for check-out, can be found throughout Fetzer Hall and Woollen Gym. These facilities also feature a cycle studio, climbing walls, and multipurpose rooms that can function for practice and instruction of a variety of fitness types. Both an indoor and an outdoor pool are located near the heart of campus. North and South Campus feature recreation complexes and fields for playing basketball, volleyball, tennis, and any other sport. The Outdoor Education Center, located off Country Club Road, is also a great facility for experiencing how recreation and the outdoors can go hand-in-hand.

Intramural Sports

Intramural Sports offers opportunities for students to compete against their peers in a friendly and structured environment.

Sport Clubs

A sport club is a University-recognized student organization formed by individuals with a common interest in a sport. Its primary goal is to promote and develop interest in a particular sport and recruit new members. Clubs may be instructional, recreational, and/or competitive.

Fitness

Fitness is housed in the Student Recreation Center (SRC) and Rams Head Recreation Center (RHRC). Both facilities offer a wide variety

of cardiovascular equipment, including many stationary bikes, stair climbers, treadmills, and cross-trainers/elliptical machines.

Over the years, Fitness and Counseling and Wellness Services (of Campus Health Services) have teamed together to enhance student wellness through greater collaborative programming, such as Powerfully Pink (a breast cancer awareness program), Women's Health and Fitness Day, the Farmer's Market, Fit Wellness into Your Day, and the Get Fit from Head to Heel Challenge.

Counseling and Psychological Services

Counseling and Psychological Services (https://caps.unc.edu) (CAPS), a department of Campus Health Services, is located on the third floor of the James A. Taylor Building.

The CAPS staff is strongly committed to addressing the mental health needs of a diverse student body through timely access to consultation and connection to clinically appropriate services. CAPS affirms that people of every background are to be treated with respect and dignity. The professional ethics and standards of the multidisciplinary staff at CAPS set a framework for understanding how facets of identity (e.g., gender, ethnicity, race, sexual orientation, gender identity/expression, age, physical and mental abilities, religious beliefs, and socioeconomic background) impact life experience. The CAPS approach to mental health integrates physical, emotional, academic, spiritual, social, and cultural well-being. Counseling and Psychological Services include individual, couples, and group therapy, urgent consultation and crisis intervention, and medication evaluation/management. The CAPS staff consists of licensed psychologists, psychiatrists, clinical social workers, psychology practicum students, interns, and administrative support personnel.

Counseling and Psychological Services can be reached Monday through Friday from 8:00 a.m. to 5:00 p.m. at (919) 966-3658. CAPS invites initial evaluations without an appointment Monday through Thursday from 9:00 a.m. to noon and 1:00 p.m. to 4:00 p.m., and on Friday from 9:30 a.m. to noon and 1:00 p.m. to 4 p.m. Students who have a psychological crisis should call (919) 966-3658 immediately. If the crisis occurs after hours, call Campus Health Services at (919) 966-2281.

Student Wellness Services

Student Wellness Services (http://studentwellness.unc.edu) seeks to enhance the individual and collective health of the community through a wide range of programs, services, and resources. Through partnerships with other campus departments, community agencies, student organizations, and peer mentors, we work to develop and advocate for a campus and community environment that creates, emphasizes, and supports healthy choices and positive decision making regarding health, safety, and wellness.

Student Wellness promotes wellness as a journey rather than an outcome and believes that students' health choices, as well as the culture of the community around them, involve a dynamic and multifaceted integration of eight dimensions of wellness: physical, emotional, spiritual, social, cultural, environmental, intellectual, and financial. Using these dimensions, Student Wellness provides integrative programs and services related to a variety of health topic areas, including healthy relationships and sexual health; stress management; sleep hygiene; alcohol and other substance education, interventions, and recovery supports; and violence prevention.

Student Wellness provides these programs and services on an individual, group, and larger campus community level.

Student Wellness Services has two locations: the first floor of the Student Academic Services Building (SASB) South, and the second floor of the James A. Taylor Campus Health Services Building. The office can be reached Monday through Friday from 9:00 a.m. to 5:00 p.m. at (919) 962-9355.

RESOURCES: SERVICE AND LEADERSHIP

Campus Y

The Campus Y (http://campus-y.unc.edu) is an extraordinarily vibrant, student-driven organization, promoting social justice and social innovation locally, nationally, and internationally. Over more than a century and a half of service, it has incubated such essential campus institutions as Student Stores, Career Services, Intramural Athletics, and New Student Orientation. It has also provided the incubation space and resources for launching fully independent nonprofit organizations such as Nourish International, the Student Environmental Action Coalition, and the Student Coalition for Action in Literacy Education. Over the course of a typical year, approximately 2,000 UNC-Chapel Hill students channel their idealism, passion, and sweat equity into a diverse array of service and advocacy initiatives, including but not limited to public health, youth development, education, human rights, micro-finance, food security, and environmental advocacy. The Campus Y is led by the student executive board and the chairs of more than 30 committees and is supported by a professional staff of three full-time employees. Students are encouraged to visit the Campus Y offices in the YMCA Building, adjacent to South Building, to learn about these opportunities and campus, community, youth, and global social justice issues.

Carolina Center for Public Service

Overview

The Carolina Center for Public Service (https://ccps.unc.edu) (CCPS) engages and supports the faculty, students, and staff of UNC–Chapel Hill in meeting the needs of North Carolina and beyond. The center strengthens the University's public service commitment by promoting scholarship and service that are responsive to the concerns of the state and contribute to the common good.

How to Get Involved

APPLES Service-Learning is a student-led program that transforms educational experiences by connecting academic learning and public service. As part of APPLES students can:

- sign up for the Service-Learning Initiative (SLI) to learn more about local organizations and how to get involved in service. SLI: Launch is available for incoming first-year students in the fall and SLI: Engage is an opportunity for any other Carolina student to get involved in the spring.
- register for an APPLES Service-Learning course on Connect Carolina to complete 30 hours of service as part of an academic course. This might also fulfill the Experiential Education requirement.
- apply for a spring or summer internship to gain valuable professional experience while receiving a stipend and academic course credit
- explore communities beyond Chapel Hill on an alternative fall, winter, or spring break trip and serve alongside a team of peers
- implement a project with a social innovation fellowship. Fellows receive funding, mentorship, and academic credit to help ideas come to life.

For any inquiries about APPLES, email apples@unc.edu. (apples@unc.edu)

The Buckley Public Service Scholars (BPSS) program provides a framework for Carolina undergraduate students committed to making a positive impact through service. Students can register for the BPSS program at the beginning of the fall and spring semesters by visiting the Web site (https://buckleyportfolio.ccps.unc.edu). BPSS strengthens the culture of service and engagement at Carolina by:

- challenging students to increase the breadth and depth of their involvement in North Carolina communities and beyond
- fostering connections between the University, its students and the community
- promoting student participation in varying dimensions of public service: direct, organizational, and policy
- developing students' capacity for engaging in their communities in meaningful ways

For any inquiries about BPSS email bpss@unc.edu. (bpss@unc.edu)

The Center offers various competitive opportunities for undergraduate and graduate students to further their involvement in public service and community engagement, including:

- Community Engaged Fellowships for returning graduate and professional students
- Community Service Scholarships for undergraduate students
- Davis Projects for Peace for undergraduate students
- Ronald W. Hyatt Rotary Public Service Awards for undergraduate or graduate students
- Mingma Norbu Sherpa Fellowship for undergraduate or graduate students
- MacDonald Community Fellowships for undergraduate students with a strong connection to a community partner

For any inquires contact Ryan Nilsen at rbnilsen@unc.edu. (rbnilsen@unc.edu)

To stay informed about the many different public service opportunities at Carolina, subscribe to the center's weekly Public Service News listserv (https://ccps.unc.edu/news-events/public-service-news-listserv/subscribe-to-the-listserv).

POLICIES AND PROCEDURES

The University provides a list of campuswide official policies (http://policies.unc.edu). The policies and procedures in this section of the catalog include information about course credit; registration and enrollment; attendance, grading, and examination; academic standing, transcripts; and other important information.

Regulations and Requirements for Undergraduate Students

Students are responsible for observing the procedures, regulations, and requirements of the University as they are set forth here and in other official University publications. This section describes many of the requirements and regulations that apply to undergraduates, but it is not a complete list of all such regulations and requirements. Unless otherwise stated, the regulations described in this section will govern the academic progress of students from their first year in the General College through their final semester in the College of Arts and Sciences or one of the undergraduate professional schools. The staff of the University will gladly provide students with detailed information concerning their academic program or academic problems, but this does not relieve any student of individual responsibility for meeting the University's requirements and observing University regulations.

Regulations and Requirements for Graduate Students

The *Graduate School Handbook* contains most of the policies and procedures of The Graduate School at the University of North Carolina at Chapel Hill. Students should become familiar with the material pertaining to their degree programs, and, together with their faculty advisors, make certain that the chosen program of study complies with all policies.

Policy Changes

The following policies were changed since the publication date of this catalog:

Admission of International Students (http://catalog.unc.edu/admissions/undergraduate)

International students are considered for admission on the same basis as other candidates and must provide the same information required of all other applicants. ***Note: The following requirements were updated in the Catalog as of 7/24/19, after the original publishing date:*** *In addition, international students are required to submit an English proficiency exam score from the Test of English as a Foreign Language (TOEFL) (strong applicants typically have a score of 100 or higher), the International English Language Testing System (IELTS) (strong applicants typically have a band score of 7.0 or higher), or the Pearson Test of English (strong applicants typically have a score of 68 or higher) if English is not their native language.*

CREDIT AND EVALUATION

Calculation of Transferred Semesters Based on the Number of Transferred Credit Hours

Several academic procedures, including the determination of academic eligibility, depend on the tally of semesters that students have completed. When credit hours are transferred, a calculation must be made as to the number of semesters the student is regarded as having used up. This calculation is based on the number of credit hours accepted by UNC–Chapel Hill for transfer, not on the number of semesters in which the student was enrolled at other colleges. Excluded from this calculation are transfer hours awarded for courses taken concurrent with high school.

Students are regarded as having used up one semester for every full multiple of 15.0 semester credit hours accepted for transfer. When credits are transferred from a college that operates on the quarter-term system, one quarter-term credit hour equals two-thirds of a semester credit hour.

See "Transfer Candidates" in the "Undergraduate Admissions (http://catalog.unc.edu/admissions/undergraduate)" section of the *Catalog* for additional information.

The same formula is applied to credit hours that a student earns while enrolled in a part-time program of study at UNC–Chapel Hill, with 90 hours regarded as six semesters and 105 hours regarded as seven semesters. *Note: Hours earned in any UNC–Chapel Hill summer term are not included in this formula.*

The formula also applies to transfer credit hours awarded for any courses taken at other institutions during a fall or spring semester (but not during summer terms) after a student matriculates at UNC–Chapel Hill.

Credit by College Board Advanced Placement, International Baccalaureate, or SAT Subject Examinations

Students who meet UNC–Chapel Hill standards on certain approved College Board Advanced Placement examinations, examinations of the International Baccalaureate Program, or certain SAT Subject Tests (e.g., foreign language) may receive academic credit for comparable University coursework. Each year the Office of Undergraduate Admissions publishes (https://admissions.unc.edu/credit/credit/test-and-placement-credit) the minimum scores necessary for the awarding of course credit (also listed below for AP and IB exams); however, final authority for awarding this placement credit lies with the chair of the department or curriculum in which credit is to be received. Minimum scores for placement may change from year to year. Regulations for credit in the year in which the student began study at UNC–Chapel Hill as a full-time student determine the standards that apply, not the year in which the student took the examination. Such credit will not be contingent upon the completion of further work in the subject unless specified by an academic department.

By-Examination (BE) credit awarded based on a student's scores on the Advanced Placement, International Baccalaureate, SAT Subject Tests, or departmental examinations may be used to fulfill General Education requirements. For students admitted as new first-year or transfer students beginning in fall 2009 or later, the following limitations apply to the use of By-Examination (BE) credit in a major or minor:

- No more than two courses (six to eight credit hours) of BE credit may be used as part of the major core.
- No more than one BE credit course (three to four credit hours) may be used as part of a minor.
- Grades of BE from an Advanced Placement, International Baccalaureate, or SAT II Subject Test may not count toward the requirement that students earn at least 18 hours of C or better grades in the major core, or toward the minimum hours of C required in the minor.

Students who wish to enroll in a course for which they have By-Examination credit should discuss their decision with an academic advisor. In the event that a student takes a course for which Advanced Placement, International Baccalaureate, or SAT Subject Test credit is awarded, the By-Examination credit will be forfeited when the course is completed, as well as any higher-level BE credit in that sequence. For example, a student whose test scores would award BE credit for MATH 231 and MATH 232 and who chooses to take MATH 231 at UNC–Chapel Hill will forfeit BE credit for both MATH 231 and MATH 232.

Advanced Placement Exam Scores

Exam	Minimum Score	Awarded Credit for the Following Courses	Credit Hours Awarded
Art History	5	ARTH 152	3
Art History	3	Art History General Elective	3
Art Studio Drawing	4	ARTS 104	0
Art Studio Drawing	3	Studio Art General Elective	3
Art 2D	4	ARTS 102	0
Art 2D	3	Studio Art General Elective	3
Art 3D	4	ARTS 103	0
Art 3D	3	Studio Art General Elective	3
Biology	3	BIOL 101/101L	4
Biology	5	BIOL 101/101L, BIOL 279/279L	8
Calculus AB	2	MATH 110P, MATH 129P	0
Calculus AB Subscore	2	MATH 110P, MATH 129P	0
Calculus AB	3	MATH 110P, 129P, 231	4
Calculus AB Subscore	3	MATH 110P, 129P, 231	4
Calculus BC	3	MATH 110P, 129P, 231, 232	8
Chemistry	3	CHEM 101/101L	4
Chemistry	5	CHEM 101/101L, 102/102L	8
Chinese	3	CHIN 203 *	4
Computer Science A	3	COMP 101	3
Computer Science A	5	COMP 101, 110	6

Economics - Either Micro or Macro	4	ECON 100	3
Economics - Either Micro or Macro	3	Economics General Elective	3
Economics - Both Micro and Macro	4	ECON 100, 101	6
English Language and Composition	4	ENGL 110	3
English Language and Composition	3	English General Elective	3
English Literature	5	ENGL 191	3
English Literature	3	English General Elective	3
Environmental Science	4	ENEC 202	4
Environmental Science	3	Environmental General Elective	3
European History	4	HIST 152	3
European History	3	History General Elective	3
French Language and Culture	5	French General Elective, FREN 203, 204, and placement into FREN 255	9
French Language and Culture	4	French General Elective, FREN 203, and placement into FREN 204	6
French Language and Culture	3	French General Elective and placement into FREN 203	3
Geography (Human)	3	GEOG 120	3
German Language	3	GERM 203, 204	6
US Government and Politics	4	POLI 100	3
US Government and Politics	3	Political Science General Elective	3
Italian Language and Culture	5	Italian General Elective, ITAL 203, 204, and placement into ITAL 300	9
Italian Language and Culture	4	Italian General Elective, ITAL 203, and placement into ITAL 204	6
Italian Language and Culture	3	Italian General Elective and placement into ITAL 203	3
Japanese	4	JAPN 203 *	4
Japanese	3	Japanese General Elective *	3
Latin	4	LATN 203, 204	6
Latin	3	Latin General Elective	3
Music Theory	5	MUSC 121, 130, 131	7
Music Theory	3	MUSC 121	3
Physics B	5	PHYS 104, 105	8
Physics B	3	Physics General Elective	3
Physics 1	4	PHYS 104	4
Physics 1	3	Physics General Elective	3
Physics 2	4	PHYS 105	4
Physics 2	3	Physics General Elective	3
Physics C Mechanics	4	PHYS 104	4
Physics C Meachnics	3	Physics General Elective	3
Physics C E&M	4	PHYS 105	4
Physics C E&M	3	Physics General Elective	3
Psychology	4	PSYC 101	3
Psychology	3	Psychology General Elective	3
Spanish Language and Culture	5	Spanish General Elective, SPAN 203, 204, and placement into SPAN 261	9
Spanish Language and Culture	4	Spanish General Elective, SPAN 203, and placement into SPAN 204	6
Spanish Language and Culture	3	Spanish General Elective and placement into SPAN 203	3
Spanish Literature and Culture	5	Spanish General Elective, SPAN 203, 204, 261	12
Spanish Literature and Culture	4	Spanish General Elective, SPAN 203, and placement into SPAN 204	6
Spanish Literature and Culture	3	Spanish General Elective and placement into SPAN 203	3
Statistics	4	STOR 155	3
Statistics	3	STOR 151	3

US History	4	HIST 128	3
US History	3	History General Elective	3
World History	3	History General Elective	3

* Students who wish to continue Chinese or Japanese at UNC must take a departmental placement exam.

International Baccalaureate Scores

Appropriate credit/placement will be awarded by the end of July for any enrolling student who has sent official scores.

Subject	Minimum Score	Awarded Credit for the Following Courses	Credit Hours Awarded
Art Studio HL	6	ARTS 104	0
Art Studio SL	6	ARTS 104	0
Biology HL	5	BIOL 101/101L	4
Biology HL	6	BIOL 101/101L, 279/279L	8
Chemistry HL	5	CHEM 101/101L, 102/102L	8
Chinese SL	5	CHIN 203 *	4
Chinese HL	4	CHIN 203 *	4
Economics HL	5	ECON 101	3
Economics SL	5	ECON 101	3
English A1 HL	5	ENGL 191	3
French B SL	5	FREN 203, 204	6
French B HL	5	FREN 203, 204	6
French A Language and Literature	5	FREN 203, 204	6
French A Literature	5	FREN 203, 204, 260	9
German B HL	5	GERM 203, 204	6
German A1 HL	5	GERM 203, 204, 303	9
German A2 HL	5	GERM 203, 204, 301	9
History Africa HL	5	HIST 130, 140	6
History Americas HL	5	HIST 128, 140	6
History of Asia and Oceania HL	5	HIST 134, 140	6
History Europe	5	HIST 140, 152	6
Italian HL	5	ITAL 203, 204	6
Italian SL	5	ITAL 203, 204	6
Japanese	5	JAPN 203 *	4
Latin SL	6	Placement into LATN 204	0
Latin SL	7	LATN 203, 204	6
Latin HL	5	Placement into LATN 204	0
Latin HL	6	LATN 203, 204	6
Math SL	5	MATH 110P, 129P	0
Math HL	5	MATH 110P, 129P, 231, 232	8
Music Comp HL	5	MUSC 141	3
Philosophy HL	5	PHIL 101	3
Physics HL	7	PHYS 104, 105	8
Psychology HL	5	PSYC 101	3
Spanish B SL	5	SPAN 203, 204	6
Spanish B HL	5	SPAN 203, 204	6
Spanish A Language and Literature	5	SPAN 203, 204	6
Spanish A Literature	5	SPAN 203, 204, 261	9
Visual Arts HL	6	ARTS 104	3
World Religion SL	5	RELI 101	3

* Students who wish to continue Chinese or Japanese at UNC must take a departmental placement exam.

Advanced Level General Certificate of Education (A-Level)

Credit is awarded for courses with a grade of C or higher.

British A-Level Course	UNC Course Equivalent	Credit Hours Awarded
Accounting	BUSI 100	3
Biology	BIOL 101/101L, 202	8
Chemistry	CHEM 101/101L	4
Classics	CLAS 121, 361	6
Economics	ECON 101	3
English Literature	ENGL 120, 121	6
French	FREN 203, 204	6
Geography	GEOG 110, 120	6
German	GERM 203, 204	6
Government and Politics	POLI 100, 232	6
History	History General Elective	3
Mathematics	MATH 110P, 129P, 231, 232	8
Philosophy	PHIL 101	3
Physical Education	EXSS 101, 175	6
Physics	PHYS 104, 105	8
Politics	POLI 100, 232	6
Religious Studies	RELI 106	3
Spanish	SPAN 203, 204	6
Sociology	SOCI 101	3
Theatre Studies	DRAM 115, 116, 120	9

Cambridge Pre-University (PRE-U)

Credit is awarded for courses with a grade of M3 or higher.

Pre-U Course	UNC Course Equivalent	Credit Hours Awarded
History-Europe	HIST 158	3

French Baccalaureate Exam

Credit is awarded for exams with a mark of 10 or higher. Both the French-Written and French-Speaking exam scores must be 10 or higher, and both

scores are averaged for a single score. If either score is below 10, even if the average total is 10 or higher, credit will not be awarded.

Exam	UNC Course Equivalent	Credit Hours Awarded
Economics and Social Sciences	ECON 101	3
English	ENGL 191	3
French	FREN 203, 204	6
History and Geography	HIST 140, 152	6
Mathematics	MATH 110P, 129P, 231, 232	8
Philosophy	PHIL 101	3
Science	BIOL 101/101L	4
Spanish	SPAN 203, 204	6

CLEP Exams

Exam	Minimum Score	Placement into the Following Courses	Credit Hours Awarded
French II	63	FREN 204	Placement credit for FREN 203; 0 hours awarded
Spanish II	63	SPAN 204	Placement credit for SPAN 203; 0 hours awarded

Scottish Examinations Authority (SQA)

If students take this exam, they will need to submit an official exam score to the Office of Undergraduate Admissions and they will manually award test credit.

SQA Subject	Minimum Score	Awarded Credit for the Following Courses	Credit Hours Awarded
Advanced Higher Physics	A2	PHYS 104, 105	8

Foreign Language, French SAT II

SAT II French and SAT II French with Listening accepted.

SAT II Score	Placement into the Following Course	Credit Awarded
350-440	FREN 101	none
450-470	FREN 105	none
480-540	FREN 203	none
550-590	FREN 204	Placement credit for FREN 203, no credit hours awarded
600-690	FREN 255 or 260	FREN 203, 204
700 & above	Placement by department interview	FREN 203, 204

Foreign Language, Spanish SAT II

SAT II Spanish and SAT II Spanish with Listening accepted.

SAT II Score	Placement into the Following Course	Credit Awarded
350-440	SPAN 101	none
450-470	SPAN 105	none
480-540	SPAN 203	none
550-590	SPAN 204	Placement credit for SPAN 203, no credit hours awarded
600-690	SPAN 255 or 261	SPAN 203, 204
700 & above	Placement by department interview	SPAN 203, 204

Foreign Language, Latin SAT II

SAT II Score	Placement into the Following Course	Credit Awarded
500 & below	LATN 101	none
510-540	LATN 102	none
550-600	LATN 203	none
610-650	LATN 204	Placement credit for LATN 203, no credit hours awarded
660 & above	LATN 221	LATN 203, 204

Foreign Language, German SAT II

SAT II German and SAT II German with Listening accepted.

SAT II Score	Placement into the Following Course	Credit Awarded
450 & below	GERM 101	none
460-500	GERM 102	none
510-550	GERM 203	none
560-640	GERM 204	Placement credit for GERM 203, no credit hours awarded
650 & above	GERM 301 or 303	GERM 203, 204

Foreign Language, Chinese SAT II

SAT II Score	Placement into the Following Course	Credit Awarded
650 & above	Placement by department exam	CHIN 203

Foreign Language, Japanese SAT II

SAT II Score	Placement into the Following Course	Credit Awarded
650 & above	Placement by department exam	JAPN 203

Foreign Language, Korean SAT II

SAT II Score	Placement into the Following Course	Credit Awarded
650 & above	Placement by department exam	KOR 203

English

Beginning in fall 2012, the English department started offering a new foundation course, ENGL 105, which took the place of ENGL 101 and 102. **All students entering in fall 2012 and beyond are required to take this course; there is no exemption through test placement**. For additional

information on English placement, please see the department's Web site (https://englishcomplit.unc.edu).

Mathematics

For information about placement, see the department's Web site (https://math.unc.edu/undergraduate/placement-information) on math placement.

Credit by Departmental Examination

Enrolled students who, through individual study or experience, have gained knowledge of the content of undergraduate courses offered by the University may, with the approval of the relevant department and school or college, receive credit (without grade) for such courses by special examination. The student must receive the approval of the department and college/school at least 30 days before the examination is taken, and the examination must be taken before the beginning of the last semester or full summer session before the student's graduation.

Policy on Credit for Internships—The College of Arts and Sciences

No internship automatically earns academic credit. Students who want academic credit for an internship should contact the director of undergraduate studies in a relevant academic department or curriculum (http://catalog.unc.edu/undergraduate/academic-enrichment/internships) before beginning the internship and must complete an internship course in that academic unit. Not all departments and curricula offer internship courses.

Internships may not be used to meet the experiential education (EE) requirement unless the student earns academic credit for the internship through a department or curriculum. A student must enroll in a course that has been approved as meeting the EE requirement in order for an internship to fulfill that requirement.

Students who must earn academic credit as a condition of doing the internship—and who cannot get credit through an academic department or curriculum—should contact a counselor at University Career Services for possible credit in SPCL 493 before beginning the internship. The student must write a statement describing his or her learning objectives and a paper reflecting on the experience. SPCL 493 is a one-credit, Pass/Fail course that does not count toward any graduation requirements.

Distance-Learning Courses

The policy governing the use of distance-learning courses applies to all new and continuing full-time and part-time degree-seeking students, and they refer to Carolina Courses Online (CCO), Summer School, and other for-credit UNC–Chapel Hill courses offered completely via similar modalities. The regulations do not apply to coursework taken prior to matriculation as degree-seeking students.

The following policies apply to distance-learning courses:

1. The maximum number of credit hours, all of which must be designated UNC–Chapel Hill, that can be counted toward an undergraduate degree in the College of Arts and Sciences is 24. There can be no exceptions to this upper limit.
2. First-semester, first-year students may not enroll in for-credit online courses unless unusual circumstances prevail, nor may first-year students take an online course in the summer prior to matriculation.
3. Full-time undergraduate students may enroll in a maximum of one for-credit online course per regular semester (after the first semester, if they are a first-year student) and a maximum of two for-credit online courses per summer session (courses offered over the full summer would count in both Summer Session I and Summer Session II).
4. Degree-seeking students who are not enrolled may take a maximum of two for-credit online courses in a regular semester or summer.
5. No more than two for-credit online courses may count toward a major (core requirement) or minor in the College of Arts and Sciences.
6. Self-Paced courses cannot count toward a degree in the College of Arts and Sciences.
7. It is the responsibility of the Senior Associate Dean for Undergraduate Education, in consultation with the Associate Dean and Director of the Academic Advising Program, to determine whether students in unusual circumstances warrant an exception to these policies.

Distance-learning courses offered at UNC–Chapel Hill are identified with the following section numbers in Connect Carolina:

- 956 – 974 (Departmental Distance Learning)
- 975 – 989 (Friday Center Distance Learning)
- 990 – 994 (Friday Center Distance Learning Carolina Courses Online)
- 01W – 09W (On-Campus Web Delivery Courses)

This policy is maintained by the College of Arts and Sciences. Last revised September 20, 2016.

Carolina Courses Online

Carolina Courses Online is a distance-education program that offers courses over the Internet. In-person attendance is not required, but courses follow the semester schedule. The courses are administered through the Friday Center for Continuing Education. To enroll, contact the Friday Center at (919) 962-1134 or visit its Web page (http://fridaycenter.unc.edu). Certain restrictions may apply. Students should consult the dean's office of their school for details.

Foreign Language Placement Credit

Experiential Speakers of a Foreign Language

Enrolled students who have learned a language currently offered at UNC–Chapel Hill by experience (i.e., having grown up speaking another language in the home or having lived several years in another country) and who are conversant and literate in that language and in English, may take a placement test in that language for placement (PL) only and not for credit hours. If the student places beyond level 3, the student can use that language to fulfill the General Education foreign language requirement, but again, no credit hours will be awarded. The placement test must be taken before the beginning of the last semester or full summer session before graduation.

Native Speakers of a Foreign Language

For academic purposes, a native speaker is a student raised in a country outside the United States and formally educated through all or most of high school in a language other than English. Native speakers cannot use By-Examination (BE) credit in their native language to reduce the requirements for a major in that language and will not receive

credit for levels 1 through 4 of their native language(s). However, upon recommendation of the appropriate language department, they may receive credit for courses taken at UNC–Chapel Hill beyond level 4 if those courses are heavily based on literature, film, culture, or other content. Native speakers of languages other than English may use ENGL 105, or its transfer equivalent, to satisfy their General Education foreign language requirement. Native speakers who wish to pursue placement (PL) in their language should complete the online form (http://advising.unc.edu/for-students/advice-by-student-year/newly-admitted-students/newly-admitted-first-years/native-or-experiential-speakers-of-a-foreign-language).

Hours of Credit

Work is valued and credited toward degrees by semester hours, one such hour usually being awarded for one hour of classroom or direct faculty instruction and a minimum of two hours out of class student work each week. One hour of credit is usually awarded for each three hours of laboratory or field work or work in studio art.

For more information on the University's course numbering system, see UPM #4 (http://registrar.unc.edu/academic-services/policies-procedures/university-policy-memorandums/upm-4-standard-course-numbering-system).

For the definition of a credit hour, see UPM #29 (http://registrar.unc.edu/academic-services/policies-procedures/university-policy-memorandums/upm-29-definition-of-a-credit-hour).

Independent Studies for Credit

The University offers independent study experiences for undergraduate students. Such courses, including directed readings, internships/practica, mentored undergraduate research, and senior honors thesis courses for an individual student, are offered for academic credit through departments and curricula. Twelve hours of graded independent study credit may be counted toward graduation (excluding six hours of senior honors thesis credit). No more than 12 hours may be taken in any one semester, with the exception of students completing a full-time teaching internship program in the School of Education and other approved practicum/internship programs in the professional schools. Students may participate in formalized programs, or they may make individual learning contracts for work under the supervision of a member of the permanent faculty at the department/curriculum level. For information about independent study courses in their majors, students should consult the director of undergraduate studies or independent study coordinator in their major department or curriculum. Students, in consultation with the faculty member, must complete a learning contract and have it approved by the director of undergraduate studies (or designee). Registration for an independent study course must be completed after the learning contract has been approved and no later than the last day of "late registration" (*the end of the second week of classes in fall or spring semester or the equivalent date in each summer session*). A template (http://registrar.unc.edu/files/2014/02/Template-Adapted-for-Use-in-the-College-of-Arts-and-Sciences.pdf) for such a learning contract is available online. Students are strongly encouraged to begin this process early, well before the beginning of the semester.

For more information, see UPM #30 (https://registrar.unc.edu/academic-services/policies-procedures/university-policy-memorandums/independent-study-policy).

This policy is maintained by the College of Arts and Sciences and Educational Policy Committee. Last revised November 28, 2017. See also Resolution 2012-12 (http://faccoun.unc.edu/files/2011/03/Res2012-12OnIndependentStudyFinal.pdf) *and Resolution 2013-6* (http://faccoun.unc.edu/files/2011/03/Res2013-06OnIndependentStudyTFReportFinal.pdf).

Semester Schedule

UNC–Chapel Hill academic operations are on a semester calendar, primarily divided into the fall and spring semesters with standard course meetings within a 17-week session. Summer School offers two sessions of five weeks each, a three-week Maymester, and other short courses with various beginning and ending dates. For specific dates, see the University's Academic Calendar (https://registrar.unc.edu/academic-calendar).

REGISTRATION, ENROLLMENT, AND WITHDRAWAL

Registration

General Policies

UNC–Chapel Hill students use the ConnectCarolina Student Center to register for courses. Students should refer to the Registration Guide (http://registrar.unc.edu/guide) on the Office of the University Registrar's Web site for instructions regarding registration.

Students who register during the billing period must pay tuition and fees, or give notice of anticipated aid, to the Office of Student Accounts and University Receivables by the published tuition and fees due date or their schedule will be cancelled and all their classes dropped before the beginning of classes. Students who register after the billing period must pay estimated tuition and fees or give notice of anticipated aid before they can register for that semester. Students who register after the date designated for official registration must pay an additional fee of $20.00 for late registration. If the delay results from circumstances clearly beyond the student's control, an appeal may be made in writing to the registrar. The appeal must show sufficient justification for the delay and has to be approved by the dean of the school in which the student is enrolled.

North Carolina law requires that no person shall attend a college or university in North Carolina without presenting a certificate of immunization to the college or university on or before the first day of matriculation. This certificate indicates that the student has received immunizations required by law. New students at UNC–Chapel Hill must provide the director of Campus Health Services with an immunization record certified by a physician. Students who fail to present the required certificate of immunization within 30 days of enrollment will be withdrawn from the University. Their enrollment will not be reinstated until they have provided a certificate of immunization to Campus Health Services.

Registration for credit for any course at the start of the semester is limited to the first five days of classes unless a late registration is approved by the course instructor and the student's dean or academic advisor. Any student who has not registered for courses after the primary billing date will be restricted from accessing the registration system for that term and will be required to submit a prepayment. For more information, please see "Course Schedule Changes" below.

Registration Advising for First-Year Students and Sophomores

All first-year students and sophomores are assigned a primary academic advisor in the Academic Advising Program (Steele Building and Hardin Hall) in the College of Arts and Sciences but may see any advisor as appropriate. Advisors' names and office locations (http://advising.unc.edu/see-an-advisor) are posted on the Web. First-year students must meet with an advisor for registration advising at least once during their first year before registering for their third semester on campus; an online module to assist students with registration, policies, and procedures is also available. All students are strongly encouraged to review their Tar Heel Tracker each semester and regularly meet with an advisor to ensure that they remain on track to graduate.

Advisors will answer students' questions and review their tentative course selections to help students achieve appropriate academic progress. In subsequent semesters, students are encouraged to discuss academic progress with their academic advisor. Students should follow instructions received from the Office of the University Registrar, which may be accessed by logging on to ConnectCarolina.

Registration Advising for Juniors and Seniors

Juniors and seniors receive academic advising during registration periods according to the directives set out by their college/professional school and major. Juniors who have not yet declared a major must meet with an advisor in the Academic Advising Program before registration.

The department or curriculum in which the student's primary major is housed determines the procedures juniors and seniors must follow for registration. In some cases, the student must meet with a faculty advisor in the department or curriculum of the primary major before being able to register each semester. These advisors answer questions specific to the major and about graduate and career opportunities in the field.

Students admitted to a professional school will receive advising and assistance on all academic matters from an advisor in their school.

Academic Level (Class Standing)

All students who begin their undergraduate careers at UNC–Chapel Hill are considered first-year students for the first and second semesters. In their third semester and thereafter, a student's classification (sophomore, junior, senior) is determined by the cumulative number of credit hours earned:

- 1–29 credit hours earned: first-year student
- 30–59 credit hours earned: sophomore
- 60–89 credit hours earned: junior
- 90 + credit hours earned: senior

Registration Priority

A student's first available date for registration (registration priority) is based on the number of semesters completed.

By policy of the Faculty Council (Resolution 2007–3), the University limits students to eight semesters of full-time study. Transfer students who transfer in the UNC–Chapel Hill equivalent of two or more semesters (see "Calculation of Transferred Semesters Based on the Number of Transfer Hours") may enroll in up to 10 total semesters (Resolution 2017-1 (https://facultygov.unc.edu/files/2017/01/Res201701OnMultipleAreasofStudy.pdf)). To help ensure graduation within the eight-semester limit, students' registration priority will be based on the number of semesters completed; the more semesters students have completed, the higher their registration priority.

Terms in residence are tallied in three ways:

1. UNC–Chapel Hill full-time enrollment
   Regardless of the number of credit hours, any fall or spring semester of enrollment in UNC–Chapel Hill courses (including UNC–Chapel Hill study abroad courses, but excluding Carolina Courses Online) counts as one semester of full-time study, unless the student is enrolled as a part-time student through Part-Time Classroom Studies. (Summer sessions at UNC–Chapel Hill do not count as semesters.)
2. UNC–Chapel Hill part-time enrollment
   Each full multiple of 15 cumulative credit hours earned at UNC–Chapel Hill in fall or spring terms (not summer terms) counts as one

semester of full-time study for any student enrolled as a part-time student through Part-Time Classroom Studies.

3. Transfer credits awarded for courses taken at other colleges
   Each full multiple of 15 cumulative transfer-credit hours counts as one semester of full-time study. Excluded from this calculation are transfer hours awarded for courses taken either concurrent with high school or during any summer term after the student has matriculated at UNC–Chapel Hill.

Any term in which a student is enrolled exclusively in online courses does not count as a semester of full-time study. Students may refer further questions to the Academic Advising Program (if the student is in the College of Arts and Sciences) or to their respective dean's office.

Repeating Course Enrollments

A student who proceeds with enrollment in a course not designated as repeatable can only earn credit once toward the fulfillment of the University's minimum undergraduate degree requirement. The credit is earned from the course with the highest passing grade or, if grades are the same, the latter attempt. The grades of all attempts of the course, however, are computed in the student's cumulative grade point average.

Certain University courses (e.g., applied music, special studies, undergraduate research, etc.) may be taken more than once for credit and are so designated in the course catalog as repeatable. A particular physical education activity (PHYA) course may be taken more than once, so long as a different level of the same course (beginning, intermediate, and advanced) is taken during each separate enrollment. PHYA courses do not award academic credit hours toward an undergraduate degree, but the grade is factored into the cumulative grade point average. Students may enroll in no more than one lifetime fitness (LFIT) course, and only one LFIT course will count toward academic credit hours for an undergraduate degree.

For the purposes of receiving financial aid, hours for repeated courses will only be considered a part of the total upon which awards are based if:

1. the student is repeating a course previously failed, or
2. the course is the **first** repeat of a prior course in which a passing grade (D or higher) was received.

Maintained by the Educational Policy Committee. Last approved on April 21, 2017, see Resolution 2017-6 (https://facultygov.unc.edu/files/2017/04/Res2017-6RepeatingCourseEnroll.pdf).

Cancellation of Enrollment

A cancellation of enrollment is, in effect, the same as a student not registering. Classes are not reflected on the student's transcript, and no tuition and fees are charged. If a student registered for classes a cancellation is only applicable if there no documentation of student attendance or for the following administrative reasons. A registration cancellation will be processed for any student who has a "hold" on the tuition and fees due date for each term, and students will be notified. A cancellation will be processed if a student is not cleared financially; is not academically eligible to continue in school; or shows a cashier's hold, Office of Undergraduate Admissions hold, dean's office hold, or Campus Health Services cancellation hold. In some cases, a student may request to cancel his or her registration for personal reasons and may do so by following instructions (http://registrar.unc.edu/academic-services/withdrawals-cancellations) listed on the Office of the University Registrar's Web site. To request a cancellation after classes begin, however, students must process the cancellation through their academic advising dean's office. For more information also see the sections on withdrawing from the University.

Administrative Changes to Course Registration

Students have the responsibility to maintain the accuracy of their course schedule. A department or curriculum in the College of Arts and Sciences has the option to drop a course from a student's registration if the student fails to attend both of the first two class meetings (or the first class meeting if the course meets only once each week). The appropriate dean's office will be responsible for informing departments of students who cannot attend the first two class meetings because of illness or other reasons approved by a dean. Students should never presume that an instructor or department/curriculum will systematically drop classes from the student's schedule. However, if such an action is taken by a department/curriculum, the registration openings resulting from these drops will be offered to other students seeking enrollment in the courses during the official add period (first five days of classes) or thereafter, as determined by the instructor of the class or by the department, curriculum, or school.

Departments/curricula can drop students' courses using the computerized registration system prior to the last day to reduce a course load for financial credit. To effect such a drop after that date but before the end of the eighth week, a student can drop the course through ConnectCarolina. (See "Course Schedule Changes" below.) Students who have applied for graduation and who have requested an academic underload must have that request approved to receive financial credit for reducing their course load.

Auditing Courses

To audit a class, registered students and persons not registered must obtain a registration/drop/add form from the teaching department offering the class. Permission from the class instructor and the department chair is required and should be indicated on the form with a written signature. This procedure applies to fall, spring, and both summer terms.

Requests to audit a class may be submitted only after the end of the official registration period (last day for students to add a class or late register) when it has been determined that there is still space available in the class. This date can be found on the University Registrar's Calendar (http://registrar.unc.edu/academic-calendar) for the specific term.

Auditing classes is permitted only in lecture-based courses and never in courses that include laboratories or performances. Auditing is not permitted in courses that focus on the development of written or oral communication skills or that rely heavily on class participation. Auditing is not permitted in independent studies courses, internships, special topics, directed readings, or similar courses. Auditing is also not permitted in classes that are offered primarily online. Students may not audit courses offered through the Friday Center for Continuing Education (Part-Time Classroom Studies, Carolina Courses Online, Self-Paced Courses, or tutorial programs) or courses preparing students for credit by examination.

Students auditing a course do not write papers, take quizzes or examinations, or request review of their work, and do not participate in class discussions unless otherwise directed by the course instructor. Students who audit a course may not subsequently receive course credit for that course. Additional information on the University's policy on auditing (http://registrar.unc.edu/academic-services/policies-

procedures/university-policy-memorandums/upm-9-auditing-courses) is available online.

Students officially registered for other classes in the same term may audit a class without paying a fee. Persons not registered for classes must pay a $20.00 fee per class to the Office of Student Accounts and University Receivables, then bring the permission and receipt to the Office of the University Registrar to complete the process. Payments will only be accepted after the end of the official registration period. Effective fall 2017, individuals of age 65 or older may audit a class without paying a fee.

If requested, a copy of the registration transaction will be given to the student to provide to the class instructor at the beginning of the term.

Changes in Fall and Spring Semester Schedules

Continuous Course Enrollment: Foundations English Composition and Foreign Language Requirements

Effective in fall 2012, students admitted as first-year or as transfer students are required to complete ENGL 105/ENGL 105I (ENGL 100 and ENGL 105/ENGL 105I, if applicable) during their first year, and they must maintain continuous enrollment in Foundations foreign language courses until they have completed this requirement. Students are not permitted to drop ENGL 100, ENGL 105/ENGL 105I, or foreign language levels 1 through 3 being used to fulfill the Foundations requirement after the second week of the semester, unless approved by a dean in the Academic Advising Program. Such approval will be for exceptional circumstances only. Students should not stop attending English composition and rhetoric and Foundation foreign language classes without speaking with a dean in the Academic Advising Program.

Course Schedule Changes

Insofar as possible, changes in course registration schedules should be made during the first five days of classes. During this time, students may add courses using the online registration system. During days six through ten of classes, students must obtain permission to register or make additions to their schedule from the course instructor; if approved, the academic department, curriculum, or school will add the student through the computerized registration system. After the tenth day of classes, if students wish to register or make additions to their schedule, they must obtain a registration/drop/add form from their academic advisor, the concerned department, or their professional school and must obtain the signatures of both their instructor and their school dean (or dean's designee). For students in the General College and the College of Arts and Sciences, only the associate dean for advising (or dean's designee) has this authority. After the tenth day of classes, deans (or deans' designees) will approve only those registrations or course additions that have first been approved by the instructor. Approval of additions to a student's schedule during this period is at the deans' (or the deans' designees') discretion.

Course Schedule Changes during Weeks One and Two

During the first two weeks of classes, students may drop a course using the online registration system, but they are responsible for ensuring that their schedules do not fall below the minimum 12 academic hours required for full-time registration.

Course Schedule Changes during Weeks Three through Eight

When a course is dropped between the second and eighth week of classes, a notation of WC (withdrawal by choice) shall be recorded and used internally for tracking and reporting purposes. For external purposes, the WC notation is equivalent to the W grade. Once declared, a WC notation cannot be rescinded except when a student withdraws from an entire semester due to extenuating circumstances. All first-year, first-time students entering the University in fall 2014 or thereafter are allowed to accumulate no more than 16 hours of WC notations during their undergraduate career.

Different drop-add procedures apply to first-year students who entered the University as degree-seeking students prior to fall 2014, along with sophomore and junior transfer students who entered in fall 2014, and junior transfer students who enter in fall 2015. Details on the previous policy (http://registrar.unc.edu/guide/registration-policies/drop-add-procedures/rules-course-drops) can be found on the University Registrar's Web site.

Course Schedule Changes after the Eighth Week of Classes: The Appeal Process

After the eighth week of classes, students must petition to drop courses through the dean's office of the school in which they are enrolled. For students in the General College and the College of Arts and Sciences, the associate dean for advising (or designee) has this authority.

To drop a course after the eighth week of classes, students must complete and submit an appeal to the appeals committee of their college or school. In the General College and the College of Arts and Sciences, an appeals committee meets weekly (except the week of July 4 and Christmas). Possible legitimate reasons for requesting a course drop after the eighth week of classes include serious illness, personal or family problems, financial problems requiring employment after the start of the semester, or other compelling and extenuating circumstances that prevent students from meeting their academic responsibilities.

Students must first discuss their reasons for requesting a late course drop with an academic advisor or their academic dean. The advisor or dean will explain the process for an appeal and refer the student to the online information and link to the online appeal form. The appeal must include a statement from the student and pertinent documentation that provides compelling support for the appeal. The student must submit all documents online to the office of the associate dean for advising in the Academic Advising Program of the College of Arts and Sciences and General College. *Submission of an appeal does not ensure that the request will be granted, and students must continue to attend classes and complete all assignments until informed of the committee's decision.* If a course drop is approved, the registration/drop/add form is processed through the Office of the University Registrar.

Students enrolled in professional schools should acquaint themselves with the appropriate appeals procedures in their schools.

The notation of W (withdrawn) is entered in the grade column of academic transcripts if students are permitted by their school to drop a course after the eighth week of classes or proportional equivalent for summer terms and other nonstandard enrollment periods. This notation is automatically entered unless the student's academic dean specifies otherwise.

Interinstitutional Registration

A student regularly enrolled in a degree program at the University may enroll by interinstitutional registration for a course at Duke University, North Carolina Central University, North Carolina State University, the

University of North Carolina at Charlotte, or the University of North Carolina at Greensboro under the following conditions:

- Space must be available in the course.
- The student's academic dean must certify
  a. that the course is appropriate for the student's degree program, and
  b. that an equivalent course is not available at this university during the same term.
- Enrollment in interinstitutional registration is limited to one interinstitutional course per regular term, provided that the student is registered for the balance of her or his full-time load at UNC–Chapel Hill. All enrollment transactions must be processed by the Office of the University Registrar.
- A student will be billed by his or her home institution for all the courses taken (including interinstitutional courses) at the prevailing tuition rate. The University of North Carolina at Chapel Hill will receive no fees from an interinstitutional student taking courses at this campus unless there is a special fee associated with a particular course. In such a case, the student must pay the fee.
- The last day for a student to submit an interinstitutional request to the Office of the University Registrar will be the last day to add a course without departmental approval, according to the registrar's calendar. If a student is interested in a course that begins after this deadline, due to differing university schedules, or separate modules that the course is being offered in, the deadline will be the fifth day after the start of that class. Start dates will be verified with the school offering the course.
- Students must comply with the academic calendar of their home institution for all dates, such as deadlines for adding and dropping courses.
- A student taking a course by interinstitutional registration will be graded in the course in accordance with the grading system of the institution where the course is taken, and grades will be converted in accordance with the grading system of the home institution. The transcript will identify the institution where the course was taken in the space where the descriptive course title is normally shown.

Additional information (http://registrar.unc.edu/guide/special-enrollments/inter-institutional-programs), procedural instructions, and forms are available at the Office of the University Registrar's Web site.

Academic Course Load

Fall and Spring Semesters

To meet the minimum graduation requirement of 120 academic hours within the eight-semester limit, students should average 15 hours each semester. However, four-hour foreign language courses and four-hour laboratory science courses often account for course loads of 16 to 18 hours. Students may not enroll in more than 18 academic hours unless they have earned a 3.000 grade point average in the preceding regular semester and have a cumulative 2.500 grade point average. Exceptions require the approval of the student's dean. With approval of their dean, seniors meeting graduation requirements during their final semester in residence may enroll in up to 21 academic hours if they have a cumulative and preceding semester grade point average of 2.000.

The minimum course load for a single semester is 12 academic hours. Students may not go below the 12-academic-hour minimum without permission of their dean. All students should discuss semester enrollment of fewer than 15 academic hours with their advisor because such enrollments may affect academic eligibility and the ability to complete all degree requirements in the required eight semesters. PHYA courses are not considered academic hours and will not count toward the 12-hour minimum enrollment.

The approved maximum course load for students in a part-time program is eight credit hours in a fall, spring, or summer term.

Summer School

The summer term begins with the first day of Maymester and continues through the last day of the Summer Session II. Administered by Summer School, summer courses are offered in two sessions (Summer Session I and Summer Session II), with a Maymester period overlapping the first three weeks of Summer Session I. For UNC–Chapel Hill students, credit hours and grades count the same as in fall or spring terms. For visiting students, transfer of grades or credit is determined by their home institution.

The typical full course load is two courses, usually six credit hours. However, students may enroll in up to eight credit hours each in Summer Session I and in Summer Session II to allow for a four-credit course or an extra one-credit laboratory or physical activity course. Students with a 2.000 cumulative grade point average may enroll in a maximum of nine hours during a summer session with the approval of their dean. It is recommended that, if students enroll in a Maymester course, they not enroll in a second Maymester or Summer Session I class.

Carolina Courses Online

There are limits on the number of online courses that may be taken in a term and how they may apply to degree requirements. For full details, see "Distance-Learning Courses" (p. 45) in this catalog.

Pass/Fail Option

The Pass/Fail option provides students an opportunity to enroll in an additional course (beyond the usual load of five academic courses) or to reduce their concerns about competing with prospective majors in a course in which they have considerable interest. Students who declare a course on the Pass/Fail option will receive the grade of PS (pass) when a letter grade of A through D is recorded on the official grade roster and F when the course is failed. For the purpose of computing a grade point average, a PS grade does not count as hours attempted; therefore, a PS grade does not affect a student's grade point average. However, an F under the Pass/Fail option counts as hours attempted and is treated in the same manner as F grades earned in any other course.

Course content and requirements are the same for Pass/Fail registrants as for regular registrants. The minimum performance for a PS grade is equivalent to the minimum performance for the letter grade of D.

Regulations Governing the Pass/Fail Option

The following regulations govern the use of the Pass/Fail option:

1. Students may only take one student-elected Pass/Fail course each semester.
2. No more than 23 total credit hours of Pass/Fail credit hours will be allowed in a student's undergraduate career, with no more than 16 hours (of the 23) from student-elected Pass/Fail classes and no more than 13 hours (of the 23) from established Pass/Fail courses.
3. The following courses may not be declared Pass/Fail:

- Courses used to satisfy General Education requirements (with the exception of lifetime fitness courses and some experiential education courses that are only offered as Pass/Fail courses).
- Courses a student has taken previously for a letter grade.
- Courses in a student's major or minor department or curriculum (or cross-listed with those departments or curricula), even if used as an elective. However, students who change their major (or minor) may count in the new major (or minor) one course previously completed with the grade PS.
- Courses specifically required by the major or minor, including foreign language courses and any additional required courses (but see the note below)
- Summer School courses
- Carolina Courses Online
- An honors seminar or honors course
- Courses taken via interinstitutional enrollment
- First-year seminars

Note: Prerequisites to courses specifically required for the major or minor may be taken Pass/Fail unless a specific grade is required in the prerequisite course.

Maintained by the Educational Policy Committee. Last approved on October 30, 2015, see Resolution 2015-12 (http://faccoun.unc.edu/files/2011/03/Res2015-12Pass-Fail_Final.pdf).

Pass/Fail Declaration Procedure

To declare a course on the Pass/Fail grading system, a student must complete the Pass/Fail course declaration form. It is obtained from the academic advisor or dean's office. Students should discuss the advisability of taking a course on the Pass/Fail grading system with their advisor before committing themselves to a formal declaration.

The period for making Pass/Fail declarations begins on the fifth day of classes of each semester and concludes at the end of the eighth week of classes. Pass/Fail declaration forms may not be submitted after the eighth week of classes.

Fifty Percent Tuition Surcharge

Undergraduate students seeking a baccalaureate degree at UNC–Chapel Hill are subject to a 50 percent tuition surcharge in some circumstances, as required by Section 9.10 (b), G.S. 116–143.7 (a). No surcharge will be imposed on any student who exceeds the degree credit hour limits within the equivalent of four academic years of regular term enrollment, or within five years of regular term enrollment in a degree program officially designated by the Board of Governors as a five-year program. For detailed information, please see the Office of the University Registrar's Web site (http://registrar.unc.edu/reg-guide/fifty-percent-tuition-surcharge).

Students Subject to the Surcharge

The surcharge should be imposed for students who exceed eight or more terms in residence on all counted credit hours in excess of the threshold defined below for each of the following three categories of undergraduates:

1. For students earning a first baccalaureate degree in a program that requires no more than 128 credit hours, the surcharge shall be applied to all counted credit hours in excess of 140.
2. For students earning a first baccalaureate degree in a Board-approved program that requires more than 128 counted credit hours, the surcharge shall be applied to all credit hours that exceed 110 percent of the credit hours required for the degree. Such programs include those that have been officially designated by the Board of Governors as five-year programs, as well as those involving double majors or dual bachelor's/master's degrees.
3. For students earning a baccalaureate degree other than their first, the surcharge shall be applied to all counted credit hours that exceed 110 percent of the minimum additional credit hours needed to earn the additional baccalaureate degree.

Tuition Guarantee Program

Effective fall 2016, undergraduate students seeking a baccalaureate degree at UNC–Chapel Hill are eligible for fixed tuition as required by the North Carolina General Statute §116-143.9 and UNC Policy 1000.17, Policy for the Tuition Guarantee Program. Further information about the Tuition Guarantee Program can be found on the Web site for the Office of the University Registrar.

Withdrawal

After the term start, students withdrawing from the University should submit an official withdrawal request through their ConnectCarolina Student Center to start the process (see sections on medical and academic withdrawal below) before the end of classes during a semester or summer session. Students in attendance considering withdrawal should contact their academic advising dean's office, Campus Health Services, or Counseling and Psychological Services for additional information. Official term withdrawal from the University is required if a student wishes to drop all classes after a semester begins. An official withdrawal may facilitate readmission in a future term. Leaving the University without completing the official withdrawal process can result in the assignment of final class grades computed as failing in establishing grade point averages and possibly rendering a student academically in-eligible. Enrolled students who do not withdraw officially will be responsible for the full tuition and fee payments associated with enrollment for the entirety of the semester.

Medical Withdrawal

If a student decides to withdraw for reasons of illness, either physical or psychological, the student should contact Campus Health Services or Counseling and Psychological Services, whether the treatment was received there or elsewhere. If a medical withdrawal is authorized, the official withdrawal will be handled through the Office of the Director of Campus Health Services or Counseling and Psychological Services. A medical withdrawal is effected without grades and without a semester in residence.

Administrative Withdrawal

A student who is withdrawn for disciplinary purposes must comply with the specific requirements or conditions outlined by the adjudicating body (e.g., Honor Court, Emergency Evaluation and Action Committee, etc.) prior to readmission. Unless specified by the adjudicating body, the term(s) in which disciplinary suspension is active shall not be calculated in the four academic year degree credit hour equivalency. Preclearance from the adjudicating body may be required in certain cases.

Academic Withdrawal from All Courses

If a student decides to withdraw for reasons other than health related, or if a withdrawal cannot be authorized through Campus Health Services or Counseling and Psychological Services, the student should submit an official withdrawal request through the ConnectCarolina Student Center.

Grades are required from instructors once the drop deadline has passed. In determining an undergraduate student's eligibility for readmission the following conditions apply:

- For students who officially withdraw from the University after the second week of a fall or spring semester, a grade of W is assigned to each course the students were enrolled in at the time of withdrawal.
- Students who officially withdraw from the University are assigned a semester in residence if their withdrawal is initiated before the end of classes during a fall or spring semester and if it is accompanied by the recording of six or more academic hours of F grades for that semester's work (grades recorded after the drop deadline). This means that the F grades and no others will be computed in the semester and cumulative grade point average.
- Withdrawal from a summer session is not counted as a semester in residence. If the withdrawal is initiated after the drop deadline during a summer session, a grade of W is assigned to each course that the student is enrolled in at the time of withdrawal. The credit hours associated with the withdrawal will count as attempted but not passed hours in the determination of the student's academic eligibility. If the student is enrolled in five or more more academic hours, the student must obtain grades from their instructors before the withdrawal can be processed; if the withdrawal is accompanied by the recording of five or more academic hours of F grades for that semester's work the F grades will be recorded and computed in the semester and cumulative grade point average.
- Students enrolled as summer session visitors from schools outside UNC—Chapel Hill must withdraw through the Office of the Dean of Summer School.
- If a student completes an official withdrawal or is withdrawn administratively for any reason from a fall or spring semester, tuition and fees will be prorated over a period of nine weeks at a rate of one-tenth of the semester's bill, after deducting an administrative charge. The last date for credit on a student's financial account for withdrawal is nine weeks after registration. If a student completes an official drop from a summer class within the first three days of classes for the session, tuition and fees will be prorated.
- If a student withdraws from the University during a semester and receives financial aid funds prior to the date of withdrawal, a portion of that money will be returned to the aid program(s). The repayment will be calculated by the Office of Scholarships and Student Aid when the official withdrawal is noted within the ConnectCarolina system.

Retroactive Withdrawal

- Students may request a retroactive term withdrawal from a semester or summer session under extraordinary circumstances. Such requests must be made in writing to the appeals committee of the college or school in which the student is currently enrolled. The decision of that appeals committee is final. If the retroactive term withdrawal is approved, the effective date of this action is always the last day of classes in the term or session. No refunds are ever provided when a retroactive withdrawal from a semester or summer session is approved.

ATTENDANCE, GRADING, AND EXAMINATION

Class Attendance Policy

(Maintained by the Education Policy Committee. Resolution 2018-1, passed on February 9, 2018)

This policy applies to University approved class absences (listed below). For final examination absences see the Policy on Final Examinations.

Regular class attendance is a student obligation. Students are responsible for all of their work, including assessments, tests, and written work, and for all class meetings. If a course instructor chooses to take attendance and sees that a student misses three or more consecutive class meetings or misses more classes than the course instructor thinks advisable, the instructor may report the facts to the student's advisor and/or academic dean.

No right or privilege exists that permits a student to be absent from any class meetings, except for these University Approved Absences:

1. Authorized University activities
2. Disability/religious observance/pregnancy, as required by law and approved by Accessibility Resources and Service (https://ars.unc.edu) and/or the Equal Opportunity and Compliance Office (https://eoc.unc.edu/what-we-do/accommodations) (EOC)
3. Significant health condition and/or personal/family emergency as approved by the Office of the Dean of Students (https://odos.unc.edu), Gender Violence Service Coordinators, (https://womenscenter.unc.edu/resources/gender-violence-services) and/or the Equal Opportunity and Compliance Office (https://eoc.unc.edu/what-we-do/accommodations) (EOC).

Instructors may work with students to meet attendance needs that do not fall within University approved absences. For situations when an absence is not University approved (e.g., a job interview or club activity), instructors determine their own approach to missed classes and make-up assessments and assignments.

The University's policy regarding University approved absences as well as the instructor's course-level policies are communicated to students via the instructor's course syllabus on the first day of class.

Students are encouraged to communicate with their instructors early about potential absences and are reminded that they are bound by the Honor Code (p. 64) when making a request for a University approved absence.

Make-up Coursework and Assessment

All students with University approved absences will be treated fairly and equitably, regardless of the reason for the absence.

Instructors will provide reasonable alternatives that permit course objectives and learning outcomes to be met. Alternatives may include a make-up exam, alternative assessment, an additional paper or project of equivalent intellectual effort, an electronically-mediated participation opportunity, a due date extension, or other option that allows students to demonstrate what they have learned without being penalized for the University approved absence. It is a University expectation that instructor be prudent, fair, and equitable when a students misses an assessment due to a University approved absence. Course policies should avoid inequities, including discrepancies in preparation time for in-class versus make-up exams, missed opportunities to take and learn from an assessment, and policies that penalize students who must use their dropped grade option for a University approved absence.

The Undergraduate Testing Center (http://testingcenter.web.unc.edu) provides a secure, proctored environment for administration of makeup assessments, tests, and exams for undergraduate and graduate courses throughout each term. There are regularly scheduled session times each week in addition to the Center's traditional use during final exams time. Please see the center's web site for more information and instructions as well as teaching and learning resources provided by the Center for Faculty Excellence (https://cfe.unc.edu).

Final Examinations

(Maintained by the Education Policy Committee. Resolution 2017-5, passed on April 21, 2017; Resolution 2017-5.1, passed on May 15, 2017)

This policy applies to all undergraduate courses across the University.

Undergraduate courses taught on campus must include a final assessment of students' mastery of course material (i.e., final examination) unless the provost grants an exception. A traditional final examination is administered at a predetermined time as specified in the official final examination schedule (http://registrar.unc.edu/academic-calendar), and takes place at a designated location in Chapel Hill. Any other type of final examination is considered nontraditional.

The final examination schedule, announced prior to the beginning of the semester, sets the day and time for each examination. No examination may start later than 7:00 p.m. Once having been established, the schedule cannot be changed. Traditional final examinations must be held at the day and time shown on the schedule unless an exception is granted as described below.

Only the provost can grant exceptions to the scheduled day or time of a traditional examination, after review and approval by the appropriate department head and the dean. No examination (except for laboratory sections) may be held at a time other than that specified in the general schedule except with the advance approval of the provost.

A course instructor may, due to highly unusual circumstances, petition for a change in the examination schedule. The instructor must submit the request in writing to his or her chair no later than the last day of late registration for that term, and it must be cleared by the chair and the appropriate dean (e.g., Associate Dean, Academic Advising) before consideration by the provost. If the petition is approved, the course instructor assumes responsibility for making special arrangements to give the examination to any student who has a schedule conflict as a result of the change. This process only applies to requests to change a day or time for an individual section.

Requests to combine all sections of a specific course into one final exam day and time (regardless of the number of sections involved), is considered a request for a Common Hour exam and has an earlier deadline for submission. Requests for all common hour exams must be cleared by the chair or appropriate dean and approved by the provost. Requests for common hour exams must be made to the registrar the first week of February for fall semester final examinations and the first week of September for spring semester final examinations. There is no exception to this deadline.

No graded quizzes or exams (excluding in-class presentations) may be given during the last five days of the semester (last two days of the session for summer school) before the beginning of the final examination period.

For a standard three-credit-hour course, the University has a required three-hour final examination period, which includes 180 minutes of instruction in each semester (see UPM #29 – Definition of a Credit Hour (http://registrar.unc.edu/academic-services/policies-procedures/university-policy-memorandums/upm-29-definition-of-a-credit-hour)). Thus, the University requires instructors to provide a full three hours of instruction for final assessment purposes (e.g., written final examination, presentations, portfolio review, performance, review and evaluation, or some combination of these assessments). It is up to the discretion of the instructor of record to determine the form, content, and function of the final examination (e.g., whether it is cumulative; whether it is a three-hour exam or a shorter exam preceded or followed by a period of review; etc.). A traditional final examination should not exceed a period of three hours. Only examinations requiring an exceptional portion of practical work should be longer than three hours (e.g., student teaching).

Chairs (i.e., heads of instructional units) must give permission for faculty members to use nontraditional examinations. Examples of nontraditional examinations include those requiring more than three hours to complete; or other final assessments such as a portfolio of a semester's work, a final project, or a take-home examination. For multidisciplinary and cotaught courses, permission to give a nontraditional examination must be granted solely by the chair of the instructional unit in which the course is based. Even when faculty members have permission to administer nontraditional final examinations, the scheduled examination period must be utilized for instructional hours. The chair should submit to their academic dean's office an annual summary of the exceptions that were granted.

Students who are absent from an examination receive a course grade of AB (absent), which is equivalent to F (zero quality points), or FA (absent and failing regardless of performance on the final examination). When students are unable, for reasons clearly beyond their control, to take a traditional final examination at the scheduled time, they can be excused only by the director of Campus Health Services or their academic dean (who can issue an "examination excuse"). An absence may be excused for severe health problems leading to the student's placement on the Infirmary List by either Campus Health Services or Counseling and Psychological Services, for significant personal or family circumstances, for religious observances required by the student's faith, for a scheduling conflict involving multiple examinations at the same time, or when a student has three or more final examinations scheduled in 24 hours. In cases of illness, personal or family emergency, or religious observance, additional documentation may be required by the dean. Primary holy days for religious observances are noted on a Web-based interfaith calendar site (http://www.interfaith-calendar.org). Students are responsible for providing the course instructor and the dean a written request for an excused absence from a final exam for a religious observance or for a scheduling conflict involving multiple examinations no later than the last day of classes. Students must be given the opportunity to make up final exams missed due to an excused absence.

For any University undergraduate courses offered entirely online or via other distance modalities, exams will be offered and must be completed during the scheduled final examination period, but requirements concerning the time of day and place of the exam will be appropriate to the course's mode of delivery. Self-paced courses are exempt from both the time and place requirements of the exam policy and the requirement that exams be held during the scheduled final examination period.

Campus Health Services

Students who are seriously ill during the time of their final examination(s) (including complications related to pregnancy) should consult Campus Health Services or Counseling and Psychological Services about having their names entered on the Infirmary List. In some cases, outpatient treatment can also result in a student's name being entered on the Infirmary List. Students on the Infirmary List may obtain an official permit from the Office of the University Registrar to take the final examination to remove a grade of AB. They must make arrangements with their course instructor to take the final examination and provide the instructor with their official permit. If students are treated at Campus Health Services or Counseling and Psychological Services but do not appear on the Infirmary List, they should see the dean of their college as soon as possible.

Academic Dean

If students know in advance that they must miss one or more final examinations because of illness, religious observance, or other serious problems, they should notify in writing both the course instructor and the dean of the school in which they are enrolled no later than the last day of classes. If this is not possible, they should see their dean as soon after the fact as possible. For students in the College of Arts and Sciences, only the associate dean for advising (or designee) is authorized to issue examination excuses for reasons other than three exams in 24 hours or two exams at the same time. For other students, only the dean of the school in which the student is enrolled has that authority. The dean may require documentation of a student's religious observance, illness, or problems.

Assuming that a student did not take a final examination for one of the reasons previously cited, the dean will issue an official examination excuse, which the student must present to the course instructor when arrangements are made for a suitable time to take the final examination.

A student who has three final examinations scheduled by the Office of the University Registrar within a 24-hour period or two scheduled at the same time may request to his or her dean's office for permission to have one of the scheduled examinations rescheduled. In the event that one of the scheduled examinations is a common final examination for a multiple-section course, that examination is the one to be rescheduled.

Students who have secured an examination excuse or an official permit and who transmit the document to the instructor or the instructor's chair or dean must be granted permission to take the exam at an alternate time, although students will need to arrange a mutually convenient time with the instructor. Except when the provost has provided an exception in writing, the exam will be taken at a time subsequent to the regularly scheduled exam, though no later than the end of the following semester.

The final examination in any course may be taken only by regularly enrolled members of the class whose registration has been certified and by students certified to be eligible to take a special examination in that course. The certifying authority is the Office of the University Registrar.

Each student is required to sign a full and explicit Honor Code pledge certifying that he or she has neither given nor received aid during the examination.

Grading System

Permanent Letter Grades

A letter-grade and plus/minus system for evaluating academic performance is employed for all undergraduates. Each letter grade corresponds to a number of grade points. Each letter-graded course receives a numerical value of quality points (quality points equal grade points times semester credit hours per course) to use in determining a student's average (per credit hour) in a particular term and to find a student's cumulative grade point average (per credit hour).

A = 4.0	B- = 2.7	D+ = 1.3
A- = 3.7	C+ = 2.3	D = 1.0
B+ = 3.3	C = 2.0	F = 0.0
B = 3.0	C- = 1.7	

To determine the grade point average for a term, first determine the total quality points earned in the term by multiplying the number of grade points awarded for each course by the course's assigned number of semester credit hours and adding the resulting quality points earned for each course in the term. Then divide the total quality points earned in the term by the number of semester credit hours attempted (for letter grades) in the term.

Example

Course	Grade	Grade Points	x	Credit Hours	=	Quality Points
Course A	C+	2.3	x	3.0	=	6.90
Course B	B-	2.7	x	3.0	=	8.10
Course C	B	3.0	x	4.0	=	12.00
Course D	C-	1.7	x	3.0	=	5.10
Course E	A-	3.7	x	1.0	=	3.70
Course F	F	0.0	x	1.0	=	0.00
Course G	A	4.0	x	3.0	=	12.00
Total quality points earned:						47.80
Total graded hours:						18.0
Term grade point average:						47.80 ÷ 18.0 = 2.656

Permanent grades are defined as follows:

A	Mastery of course content at the highest level of attainment that can reasonably be expected of students at a given stage of development. The A grade states clearly that the student has shown such outstanding promise in the aspect of the discipline under study that he/she may be strongly encouraged to continue.
B	Strong performance demonstrating a high level of attainment for a student at a given stage of development. The B grade states that the student has shown solid promise in the aspect of the discipline under study.
C	A totally acceptable performance demonstrating an adequate level of attainment for a student at a given stage of development. The C grade states that while not yet showing any unusual promise, the student may continue to study in the discipline with reasonable hope of intellectual development.
D	A marginal performance in the required exercises demonstrating a minimal passing level of attainment for a student at a given stage of development. The D grade states that the student has given no evidence of prospective growth in the discipline; an accumulation of D grades should be taken to mean that the student would be well advised not to continue in the academic field.
F	For whatever reasons, an unacceptable performance. The F grade indicates that the student's performance in the required exercises has revealed almost no understanding of the course content. A grade of F should warrant questioning whether the student may suitably register for further study in the discipline before remedial work is undertaken.

Grades earned and semester hours attempted at other institutions are not included in the calculation of the University grade point average.

Records of progress are kept by this institution on all students. Students can access official semester grades in ConnectCarolina at the end of the term. Questions about access to student official grades or grade reporting should be directed to the Office of the University Registrar.

Temporary Grades (IN and AB) and FA Grades

Any student who ceases to attend a class without officially being dropped or withdrawn may receive a temporary grade of AB or IN or a permanent grade of FA.

Students who do not complete all requirements in a course by the end of the semester, but who could pass the course if they did, receive a temporary grade of IN (incomplete) or AB (absent from the final exam) in place of a permanent letter grade. Grades of IN and AB carry the value of an F grade (zero quality points) and are used in the computation of semester and cumulative grade point averages. Students who do not complete the course requirements within a specified period of time are

assigned permanent F* grades on their academic transcripts by the Office of the University Registrar.

The instructor must report the grade of AB for any student who did not take the final examination and who, by taking the final examination, could pass the course. This AB grade carries the value of an F in computing the student's cumulative and semester grade point average, and later converts to an F* unless the student arranges to take the final examination before the last class day of the next scheduled semester (fall or spring). If the student cannot pass the course regardless of a final examination performance, the instructor must report the grade FA. The grade of FA (cannot pass the class) is a permanent failing grade. A grade of F may be assigned instead of a temporary grade or a grade of FA when a final examination is not required in the course.

The grade IN may only be assigned by an instructor to a student who took the final examination in a course but did not complete some other course requirement (including signing the honor pledge) and who, by virtue of completing that missing work, might pass the course. An IN carries the value of an F (zero quality points) in computing a student's cumulative and semester grade point average. Unless removed within eight weeks of the beginning of the regularly scheduled semester (fall or spring) following its assignment, an IN converts to an F*.

When submitting an AB or IN, an instructor must enter the grade on the instructor's grade roster and must also complete a temporary grade assignment form (http://registrar.sites.unc.edu/files/2012/03/CCM3_031444.pdf) available online through the Office of the University Registrar. The purpose of this form is to establish a record of what arrangements, if any, have been made between the student and instructor to clear the AB or IN.

Absence from a final examination may be officially excused only by the student's dean or the director of Campus Health Services or Counseling and Psychological Services. Please see "Final Examinations" above for information about final examination excuses.

Important Rules and Procedures Pertaining to AB and IN Grades

The decision to report an IN grade is solely the responsibility of the course instructor; however, a student may present proper justification for the instructor's consideration.

Temporary grades should be cleared by completing the work outstanding, preferably no later than the start of the following semester. The deadline for clearing a temporary grade of AB is the last class day of the next regularly scheduled semester (fall or spring) after the AB grade is awarded. A temporary grade of IN must be cleared within the first eight weeks of the regularly scheduled semester (fall or spring) after the IN grade is awarded.

If students intend to remove IN or excused AB grades, they should not officially enroll in the course(s) during the next semester or summer session. If recommended by the course instructor, a student may attend by officially auditing a part of that instructor's section of the course or another instructor's section of the same course in which the temporary grade was awarded.

If a student enrolls in a course in which a temporary grade has been previously received, the second enrollment is taken as evidence that the student could not or is not permitted to remove the temporary grade. This results in replacing the temporary grade by F* after the deadline for removing the temporary grade. The grade earned during the second enrollment is also reported on the student's academic transcript and is used along with the F* grade in the computation of a cumulative grade point average.

Other Grades and Notations

A notation of BE (By-Examination) is entered in the grade column of academic transcripts if students are awarded credit for a course as a result of evaluation by departmental, Advanced Placement, International Baccalaureate, or SAT II Subject Test examinations. BE credit confers credit hours and can be used to fulfill General Education requirements. For first-time, first-year students entering UNC–Chapel Hill in fall 2009 or thereafter, no more than two courses (six to eight credit hours) of BE credit can be applied to a major and no more than one course (three to four credit hours) of BE credit can be applied to a minor in the College of Arts and Sciences. BE credit may not be used to satisfy the requirement that students earn at least 12 or 18 hours of C or better grades in courses making up the minor or major respectively.

A notation of NG (no grade) is not used by individual instructors but rather is assigned by the Office of the University Registrar when a permanent grade is pending a judicial review by the Honor Court.

A notation of PL (placement) is entered in the grade column of academic transcripts if students are awarded exemption for a course as a result of an evaluation that would ordinarily place them in a succeeding course. PL does not confer credit hours.

There are some courses for which only a grade of PS (pass) or F (fail) can be awarded. For all other courses, students may opt to take a class on a Pass/Fail basis (http://catalog.unc.edu/policies-procedures/registration-enrollment-withdrawal).

A grade of SP (satisfactory progress) may be used in the first course of a departmental undergraduate honors program. The honors program runs through two semesters, and a final grade is not reported until completion of the second course. When the final grade is reported, the previously assigned SP grade must be changed to the appropriate permanent letter grade by an official grade change form. Credit hours are awarded for the first honors course only after a letter grade replaces the SP grade. An SP grade is not computed in the grade point average.

A notation of W (withdrawn) is entered in the grade column of academic transcripts if students are permitted by their school to drop a course after the eighth week of classes or proportional equivalent for summer terms and other nonstandard enrollment periods. This notation is automatically entered unless the student's academic dean specifies otherwise.

When a course is dropped between the second and eighth week of classes, a grade of WC (withdrawal by choice) shall be recorded and used internally for tracking and reporting purposes. For external purposes, a withdrawal by choice is equivalent to the W notation. Once recorded, a WC cannot be rescinded unless it is determined the student withdrawal was due to extenuating circumstances.

A notation of XF is entered to indicate that a student has not passed a course as the result of an Honor Court violation. The grade of XF can be replaced by a final grade of F if the student follows prescribed steps to remediate the violation.

A blank space or a grade of NR (not reported) is shown in the grade column when the instructor has not submitted the official grade for the student.

Repeating Course Enrollments

See Registration, Enrollment, and Withdrawal (p. 51).

Grades Earned at Other Institutions

With the exception of courses taken via interinstitutional registration (p. 51), grades earned and semester hours attempted at other institutions are not included in the computation of a grade point average at the University. A grade point average earned at another university may not be used to restore academic eligibility; however, academic hours earned at another university may be used to restore academic eligibility if the student is lacking only credit hours and has a satisfactory grade point average. Special rules regarding transfer courses apply; see Transfer of Credit (http://catalog.unc.edu/admissions/undergraduate) and Academic Eligibility (p. 62).

Grade Appeals

The grades of H, HP, P, LP, L, A, A-, B+, B, B-, C+, C, C-, D+, D, PS, F, FA, F*, and numerical grades in the Law School are considered permanent grades. Once reported, the instructor's grade report may not be changed except under certain conditions. For a grade change to be considered, it must be based upon one or more of the following grounds and upon allegation that the ground or grounds cited influenced the grade assignment to the student's detriment:

- Arithmetic or clerical error
- Arbitrariness, possibly including discrimination or harassment based on the race, color, gender, national origin, age, religion, creed, disability, veteran's status, sexual orientation, gender identity, or gender expression of the student
- Personal malice
- Student conduct cognizable under the *Instrument of Student Judicial Governance*

A grade appeal must be made no later than the last day of classes for the succeeding fall or spring semester.

Grade Appeals Correcting a Clerical or Arithmetical Error

An instructor who has reported an incorrect grade for a student because of an error in calculating the grade, or in entering it on the official grade roster, may change the grade to one of the other letter grades, provided this change is made no later than the last day of classes of the succeeding fall or spring semester. Grade changes are submitted online using the Grade Change Request process, with electronic approvals required by the instructor, the department chair, and student's dean's office.

Other Grade Appeals

Any student who protests a course grade shall first attempt to resolve this disagreement with the instructor concerned. (As explained in the preceding paragraph, an instructor may change a permanent grade only when a clerical or arithmetical error is involved.) Failing to reach a satisfactory resolution, the student may appeal the grade in accordance with the procedures outlined below. Such appeal must be made no later than the last day of classes of the succeeding fall or spring semester.

Students should present the appeal in writing to the dean of their school (students in the College of Arts and Sciences must submit it in writing to the associate dean for advising). The dean will refer the appeal to the administrative board of his/her school, which will meet to consider whether the student has offered sufficient grounds for referring the appeal to the chair of the department concerned. If the administrative board determines that further review by the academic department is appropriate, the department chair will then appoint a committee to consider the appeal and will make a recommendation to the administrative board based on the committee's findings. The administrative board will make the final decision, and no change of grade will be made except as a result of the decision by the board. The chair will report such decision to change the grade to the Office of the University Registrar.

ACADEMIC STANDING

Academic Eligibility Policy

For students in the undergraduate career, the University's academic eligibility policy specifies the minimum standards of academic performance required for continued enrollment. These standards apply to undergraduate students enrolled in courses during or after the fall 2016 semester.

Degree-Seeking Programs

To guide students toward timely degree completion, the University maintains academic eligibility standards. These standards are reviewed at the end of fall, spring, summer I, and summer II terms. These standards determine academic status for each undergraduate in a degree-seeking program. Academic status indicates eligibility to enroll in any course in any term including summer. Students must check their academic status in ConnectCarolina at the end of each enrolled fall, spring, or summer term.

Academic status is determined through four standards of satisfactory academic progress:

1. ***Grade Point Average***. A cumulative UNC–Chapel Hill grade point average of at least a 2.000 is required.
2. ***Completion Rate***. Students must successfully complete at least 2/3 of cumulative attempted credit hours. By-Exam (BE) and credits transferred in to UNC–Chapel Hill count as both attempted and completed hours. Withdrawals, temporary grades including AB, IN, or SP, and failed courses count as attempted hours but not completed hours. Completed Hours/Attempted Hours=Completion Rate.
3. ***Cumulative Hours Passed****. To enroll in courses, students must have earned the following:

- After one full-time semester: 9 academic hours
- After two full-time semesters: 24 academic hours
- After three full-time semesters: 36 academic hours
- After four full-time semesters: 51 academic hours
- After five full-time semesters: 63 academic hours
- After six full-time semesters: 78 academic hours
- After seven full-time semesters: 93 academic hours

Students are expected to complete their degree within a maximum of eight full-time semesters. Transfer students (who transfer in the UNC–Chapel Hill equivalent of two or more semesters, see "Calculation of Transferred Semesters Based on the Number of Transfer Hours (p. 45)") may enroll in up to 10 total semesters. Students who enter as first years are required to apply for a ninth or tenth semester. For information about the application process, students in professional schools must contact their professional school dean, and students in the College of Arts and Sciences must contact the Academic Advising Program (http://advising.unc.edu).

*Part-time students are excluded from this standard.

4. ***Maximum Time Frame***.Students must complete their degree within 180 attempted credit hours.

There are four **academic statuses**: good standing, warning, suspension, and probation.

Students who meet each of the four standards at the end of an enrolled term will have an academic status of **good standing**.

Students who begin an enrolled term in good standing but do not meet each of the four standards at the end of that enrolled term will receive an academic status of **warning**. Students with a status of warning may enroll in courses and must complete an academic intervention plan (http://studentsuccess.unc.edu/warning).

A student who begins an enrolled term with a status of warning and falls short of the standards at the end of that enrolled term will earn an academic status of **suspension**. Students with an academic status of suspension cannot enroll in any courses in any terms. Students with an academic status of suspension have two options:

a. Appeal for **probation**. Students granted academic probation by appeal must complete an academic intervention plan (http://studentsuccess.unc.edu/academic-probation-3). Students denied probation by appeal can pursue option b.

b. Spend a term engaging in study, work, or wellness activities away from UNC–Chapel Hill. These opportunities could include coursework at another institution, employment, volunteer work, or healthcare or wellness activities. During this time students should reflect on their academic path, development, choices, and actions. Students should also implement strategies that will enhance their effectiveness upon return to the University. After a term away from the University, students who have engaged in study, work, or wellness activities may appeal to return to the University on probation. Students appealing after a term or longer away from the University must include documentation of their experiences while away such as a transcript from another institution, a letter from an employer, or a letter from a healthcare provider. These documents must convey evidence of the student's readiness to return to the University.

A student who begins an enrolled term with a status of probation and falls short of the standards at the end of that enrolled term will earn an academic status of **suspension**. Students with an academic status of suspension have two options (see above).

Repeats, Withdrawals, and Incompletes

Attempted hours include all those in which a student is enrolled as of the end of the second week of each fall or spring term (the 10th day of the term, generally known as the "census date"). Students may drop a course until the 10th day of the term. Dropped courses do not count in attempted hours.

The summer schedule is similar to fall/spring but is determined according to the summer calendar. Credit hours that are dropped or withdrawn prior to the census date are not considered attempted; credit hours that are dropped or withdrawn after the census date *are* considered attempted.

Repeated courses affect grade point average and Completion Rate.

Transfer hours do not affect grade point average. Transfer hours are added to both completed hours and attempted hours in the Completion Rate calculation.

Courses with temporary grades of IN or AB affect grade point average. A grade of IN (incomplete) or AB (absent from final exam) is calculated as an F until a permanent grade is assigned. If a grade of IN or AB is converted to a passing grade, grade point average will be recalculated

accordingly. Grades of IN or AB will adversely affect Completion Rate, counting as attempted hours but not completed hours.

Withdrawn courses do not affect grade point average. Withdrawn courses are NOT considered a successful completion, though, and will adversely affect Completion Rate.

Failed courses influence grade point average. A failed course will also adversely affect Completion Rate, counting as attempted hours but not completed hours.

Overview of Academic Status

Entering Academic Status	Term Performance	New Academic Status
Good	Meets all 4 standards	Good (may enroll)
Good	Does not meet all 4 standards	Warning (may enroll; must complete academic intervention plan)
Warning	Meets all 4 standards	Good (may enroll)
Warning	Does not meet all 4 standards	Suspension (may not enroll; may pursue options a or b for suspension status)
Probation	Meets all 4 standards	Good (may enroll)
Probation	Does not meet all 4 standards	Suspension (may not enroll; may pursue options a or b for suspension status)

Academic Eligibility Policy for Non-Degree-Seeking Programs

For non-degree-seeking students there are three academic statuses: good standing, alert, and ineligible. A non-degree-seeking student with a 2.000 or higher cumulative grade point average will be in good standing and eligible to enroll in courses. If a non-degree-seeking student falls below a 2.000 cumulative grade point average, the student will be assigned a status of alert. A non-degree-seeking student who begins a term with a status of alert and does not raise his or her cumulative grade point average to 2.000 or higher at the end of the term will have an academic status of ineligible and will not be permitted to enroll in courses. Non-degree-seeking students with a status of ineligible may appeal to The Friday Center.

Appeals

Students may, under extraordinary circumstances, present an appeal in writing (or online for students in the College of Arts and Sciences) to the dean of their school (for students in the College of Arts and Sciences, this is the associate dean for advising). The dean will refer the appeal to the administrative board for his/her school.

Calculation of Transferred Semesters Based on the Number of Transferred Credit Hours

See the Credit and Evaluation (p. 45) section of the catalog.

Additional Information for Students with an Academic Status of Suspension

- If students earn 15 or more transfer semester credit hours for courses taken at other institutions cumulatively over the fall or spring semesters before applying for readmission to the University, a calculation will be made as to how many semesters the student is regarded as having completed, based on the number of hours accepted for transfer credit. The resulting tally of total semesters completed will determine requirements for restoring academic eligibility.
- Students should consult their academic advisor if they are considering taking classes at another institution. Grades do not transfer, and credit hours accumulated through enrollment in fall and spring semesters at other schools can affect the number of remaining semesters that students have left to complete their degree requirements at UNC–Chapel Hill.
- Students who attend another institution (summer, fall, or spring), and who apply for readmission must have at least a 2.000 (C) average in work at the other institution.
- Students who have a housing assignment or contract for the following semester should either cancel their application/contract or notify the University's Department of Housing and Residential Education of their intention to restore academic eligibility before the following semester begins.

Students who are inactive during a semester because of ineligibility (or other reasons) must apply for readmission before registering for a full-time term.

Removing AB or IN Grades

For information about completing courses with grades of AB (absent from the final examination) or IN (incomplete), see the grading system information (p. 57).

HONOR CODE

The Honor Code

The Honor System forms a bond of trust among students, faculty, and administrators. The University of North Carolina at Chapel Hill operates under a system of self-governance, as students are responsible for governing themselves. As such, our University is transformed into a powerful community of inquiry and learning. The Honor Code embodies the ideals of academic honesty, integrity, and responsible citizenship, and governs the performance of all academic work a student conducts at the University. Acceptance of an offer of admission to Carolina presupposes a commitment to the principles embodied in our century-old tradition of honor and integrity.

Mutual Responsibilities of the Faculty and Students

Academic work is a joint enterprise involving faculty and students. Both have a fundamental investment in the enterprise and both must share responsibility for ensuring its integrity. In relation to the Honor Code, therefore, specific responsibilities of the faculty which parallel the responsibilities of the students have been formally adopted by the Faculty Council.

Responsibilities of the Faculty

1. Awareness: To assure that community-wide expectations regarding academic integrity are understood and communicated, and that students are held accountable for conforming their conduct to such expectations.
2. Communicating Expectations and Administering Examinations: To assist students in complying with their responsibilities relating to academic integrity, faculty members, teaching assistants, and other instructional personnel should
   a. Use good judgment in setting and communicating clear ground rules for academic work conducted under their supervision.
   b. Require students to sign the honor pledge as a condition of submitting academic assignments.
   c. Take steps to prevent unauthorized access to examinations during development, duplication, and administration.
   d. Avoid reusing prior examinations in whole or in part to the extent possible.
   e. Take all reasonable steps consistent with physical classroom conditions to reduce the risk of cheating during the administration of examinations.
   f. Maintain proper security during the administration of examinations, including as appropriate overseeing distribution and collection of examinations and proctoring the examination session.
3. Oversight: In the event of student misconduct that appears to violate the requirements of the Honor Code, faculty members, teaching assistants, and other instructional personnel should
   a. Report to the appropriate Student Attorney General any instance in which the instructor has reasonable basis to conclude that a student under the faculty member's supervision has engaged in academic dishonesty or substantially assisted another to do so in connection with academically related work.
   b. In the instructor's discretion, notify the student of the instructor's intention to report the suspected academic dishonesty and permit the student to provide relevant further information if the student chooses to do so.
   c. Refrain from taking unilateral punitive action as to a student rather than reporting conduct in suspected violation of the Honor Code.
   d. Cooperate with representatives of the Honor System in conducting necessary investigation, providing testimony or other evidence, recommending appropriate sanctions, or otherwise bringing the matter to prompt conclusion.
4. Involvement: To bring to bear requisite faculty judgment regarding the nature and importance of academic integrity, and to nourish a strong campus-wide understanding and commitment to associated intellectual and personal values, faculty members, teaching assistants, and other instructional personnel should
   a. Explore issues of integrity in connection with instructional activities where relevant and appropriate.
   b. Encourage their academic units to take matters of academic integrity seriously, become informed regarding related problems and advisable means of preventing problems from arising, and provide requisite training and support to instructional personnel.
   c. Participate upon request as part of educational initiatives, faculty advisory panels, and University Hearing Boards designed to create, nurture, and enforce high standards of academic integrity within the University community.

Responsibilities of Students

To ensure effective functioning of an Honor System worthy of respect in this institution, students are expected to

1. Conduct all academic work within the letter and spirit of the Honor Code, which prohibits the giving or receiving of unauthorized aid in all academic processes.
2. Consult with faculty and other sources to clarify the meaning of plagiarism, to learn the recognized techniques of proper attribution of sources used in the preparation of written work, and to identify allowable resource materials or aids to be used during examination or in completion of any graded work.
3. Sign a pledge on all graded academic work certifying that no unauthorized assistance has been received or given in the completion of the work.
4. Comply with faculty regulations designed to reduce the possibility of cheating–such as removing unauthorized materials or aids from the room and protecting one's own examination paper from the view of others.
5. Maintain the confidentiality of examinations by divulging no information concerning an examination, directly or indirectly, to another student yet to write that same examination.
6. Treat all members of the University community with respect and fairness.
7. Report any instance in which reasonable grounds exist to believe that a student has given or received unauthorized aid in graded work or in other respects violated the Honor Code. Such report should be made to the Office of the Student Attorney General, the Office of the Dean of Students, or other appropriate officer or official of their college or school.
8. Cooperate with the Office of the Student Attorney General and the defense counsel in the investigation and hearing of any incident of alleged violation, including the giving of testimony when called upon.

Procedure for Reporting

Members of the University community who wish to report possible violations of the Honor Code should contact the Office of Student

Conduct at (919) 962-0805 or fill out the online form (https://studentconduct.unc.edu/report-violation-office-student-conduct). The Office of Student Conduct will review the report and refer it to the appropriate Student Attorney General for action.

UNIVERSITY POLICIES

Regulations and Policies

The personal conduct of the University student is subject to the moral and legal restraints found in any law-abiding community. Additionally, the Honor Code is a positive force for good citizenship. University regulations are not specifications for acceptable conduct or detailed lists of offenses subject to penal action. They are intended to provide information about systematic procedures and equitable decisions in many situations involving individual students and officers of the University.

Code of the University of North Carolina

Section 502D(3)—Subject to any policies or regulations of the Board of Governors or of the Board of Trustees, it shall be the duty of the chancellor to exercise full authority in the regulation of student affairs and student conduct and discipline. In the discharge of this duty, delegation of such authority may be made by the chancellor to faculty committees and to administrative or other officers of the institution, or to agencies of student government, in such manner and to such extent as may by the chancellor be deemed necessary and expedient. In the discharge of the chancellor's duty with respect to matters of student discipline, it shall be the duty of the chancellor to secure to every student the right to due process. Appeals from these disciplinary decisions are allowable only on the following grounds:

1. a violation of due process, or
2. a material deviation from the Minimum Substantive and Procedural Standards for Student Disciplinary Procedures, Section 700.4.1 of the UNC Policy Manual.

Where the sanction is suspension or expulsion, an appeal may be made to the Board of Trustees. No appeal to the president or Board of Governors is permitted.

Whistleblower Policy

The purpose of this policy is to encourage individuals to report possible wrongful conduct to an appropriate authority so that prompt, corrective action can be taken by the University and to protect reporting individuals from any retaliation for reporting wrongful conduct. Please see the full text of the Whistleblower Policy on the Web (https://unc.policystat.com/policy/5092510/latest).

Religious Accommodation Policy

The University of North Carolina at Chapel Hill is committed to providing a welcoming and inclusive environment that is respectful of the religious beliefs and practices of all members of the University community. As part of this commitment, the University will make good faith efforts to provide reasonable religious accommodations to individuals covered by this policy whose sincerely held religious beliefs and practices conflict with a University policy, procedure, or other academic or employment requirement unless such an accommodation would create an undue hardship.

The University is committed to diversity and nondiscrimination and supports the employment of all qualified individuals, regardless of religious affiliation or beliefs. This commitment is in accordance with state and federal laws and regulations, including Title VII of the Civil Rights Act of 1964 and its accompanying regulations, as well as the Equal Employment Opportunity Commission's Guidelines on Discrimination Because of Religion, and North Carolina General Statute § 116-11(3a). Please see the full text of the Religious Accommodation Policy on the Web. (https://unc.policystat.com/policy/5647667/latest)

Alcoholic Beverages

Possession and use of alcoholic beverages is substantially regulated by federal, state, and local laws and ordinances. Within this legal framework, the University's Alcohol Policy (https://unc.policystat.com/policy/5425325/latest) sets out the conditions under which alcoholic beverages may be used on University property.

According to North Carolina law

- Generally, persons 21 or older may purchase or consume alcoholic beverages and may possess alcoholic beverages at their homes or temporary residences.
- It is against the law for any person under 21 to purchase or possess any alcoholic beverage. (General Statute 18B-302)
- It is against the law for anyone to sell or give any alcoholic beverage to a person under 21 or to aid or abet such a person in selling, purchasing, or possessing any alcoholic beverage. (General Statute 18B-302)
- No alcoholic beverages may be sold by any person, organization, or corporation on a college campus except as permitted by North Carolina General Statutes, Sect. 18B-1006 (a).

According to Chapel Hill ordinance 3-3 (https://library.municode.com/nc/chapel_hill/codes/code_of_ordinances?nodeId=CO_CH3ALBE), it is against the law for anyone to possess any open container of alcohol on streets, sidewalks, alleys, or any other property owned or controlled by the Town of Chapel Hill.

In addition to following the law, the Alcohol Policy of The University of North Carolina at Chapel Hill sets out special rules about alcohol for students and student organizations. The Office of the Dean of Students will provide copies of the policy and assistance in understanding its full implications. The text of the policy (https://unc.policystat.com/policy/5425325/latest) can be accessed on the Web.

Policy on Illegal Drugs

The Board of Trustees of The University of North Carolina at Chapel Hill, in conformity with the direction of the Board of Governors of The University of North Carolina, hereby adopts this Policy on Illegal Drugs, effective August 24, 1988. It is applicable to all students, faculty members, administrators, and other employees. This policy addresses education, counseling, and rehabilitation; enforcement and penalties; and implementation and reporting. Please see the full text of the Illegal Drugs policy on the Web. (https://unc.policystat.com/policy/5073657/latest)

Commercial Activities

Commercial exchanges, including selling or soliciting for the sale of goods or services by any person on the campus of the University is prohibited except as provided for in the Facilities Use Policy (https://unc.policystat.com/policy/4487860/latest).

Emergency Evaluation and Action Committee Policy and Procedures

In keeping with the long tradition of student self-governance at The University of North Carolina at Chapel Hill, the chancellors of the University have delegated a portion of their authority in matters of student discipline to a student judicial system that functions in accordance with The Instrument of Student Judicial Governance. From time to time, however, the University is faced with situations

involving behavior of applicants for admission, who are not yet within the jurisdiction of the student judicial system, and situations involving students that require a University response because they pose some danger to the University and/or its processes but that are not cognizable under the Instrument. Occasionally emergency situations arise in connection with student behaviors, which require a faster response than the student judicial system's procedures can provide. To address all of these situations and to fulfill the University's obligation to provide a safe campus, the Emergency Evaluation and Action Committee has been established. The full text of the committee's policies and procedures is on the Web (https://unc.policystat.com/policy/4639588/latest).

Equity in Athletics Disclosure Act

Information compiled under the federal Equity in Athletics Disclosure Act is available on request from the Department of Athletics Business Office.

Expulsion

Per UNC System Policy 700.4.3[G], a student who has been expelled from one constituent institution may not be admitted to another constituent institution of the University, unless and until the sanction of expulsion has been rescinded by the institution that imposed the sanction.

Fireworks, Firearms, and Other Weapons

Per N.C. General Statute 14.269.2(b) and (b1), it is a felony, punishable by fine and/or imprisonment, to possess or carry, openly or concealed, any gun, rifle, pistol, or other firearm of any kind, or any dynamite cartridge, bomb, grenade, mine, or powerful explosive on any University campus, in any University-owned or operated facility, or at a curricular or extracurricular activity sponsored by the University. Such conduct also may constitute a violation of the Honor Code. (See North Carolina General Statute 14-269.2 (http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_14/GS_14-269.2.pdf).)

Per N.C. General Statute 14.269.2(k1) and (k2), a person who has a concealed handgun permit that is valid under North Carolina law, or who is exempt from obtaining a permit pursuant to North Carolina law, may have a handgun in a closed compartment or container within the person's locked vehicle or in a locked container securely affixed to the person's vehicle. A person may unlock the vehicle to enter or exit the vehicle provided the firearm remains in the closed compartment at all times and the vehicle is locked immediately following the entrance or exit.

Per N.C. General Statute 14.269.2(e), it is a Class 1 misdemeanor, punishable by fine and/or imprisonment, to possess or carry, whether openly or concealed, any BB gun, stun gun, air rifle, air pistol, bowie knife, dirk, dagger, slingshot, leaded cane, switchblade knife, blackjack, metallic knuckles, razors and razor blades (except for personal shaving), fireworks, or any sharp-pointed or edged instrument (except instructional supplies, unaltered nail files, and clips and tools used solely for preparation of food, instruction, and maintenance) upon any University campus or in any University-owned or operated facility. Such conduct may also constitute a violation of the Honor Code.

Housing and Residential Education

For policies and procedures related to living on campus, visit the Housing and Residential Education (https://housing.unc.edu/about-us/policies) Web site.

Immunization Requirement

Effective July 1, 1986, N.C. General Statute 130A-155.1 requires that no person shall attend a college or university in North Carolina unless a certificate of immunization indicating that the person has received the immunizations required by N.C. General Statute 130A-152 is presented to the college or university on or before the first day of matriculation.

If a student's Medical History Form containing the certificate of immunization is not in the possession of Campus Health Services 10 days prior to the registration date, the University shall present a notice of deficiency to the student in question. Per N.C. General Statute 130A-155.1(a), the student shall have 30 calendar days from the first day of attendance to obtain the required immunizations, or present evidence of exemption. Those persons who have not complied with the immunization requirements by the end of 30 calendar days will be administratively withdrawn from the University.

Improper Relationships between Students and Employees

On March 15, 1996 (updated July 1, 2007), The University of North Carolina Board of Governors adopted a system-wide policy (300.4.1) that prohibits amorous or sexual relationships between faculty or staff employees and

1. students they evaluate or supervise by virtue of their teaching, research, administrative, or other employment responsibility and
2. students who are minors below the age of 18.

The policy also states that faculty or staff employees may not supervise or evaluate students to whom they are related by blood, law, or marriage. The full UNC–Chapel Hill policy based on the board's policy is available on the Web (https://unc.policystat.com/policy/5219879/latest).

Veterans' Educational Benefits

Students who expect to use their veterans' educational benefits must contact the Veterans' Services Assistant in the Office of the University Registrar, located in the Student and Academic Services Building North. Students must maintain satisfactory academic progress to be eligible for VA educational benefits. Students who are not eligible at the end of the term will not be eligible for veterans' educational benefits in subsequent terms until they regain their eligibility. For further information, please visit the Web site (http://registrar.unc.edu/academic-services/veteran-affairs) or call (919) 962-9864.

Military Tuition Benefit

As a member of the armed services, the North Carolina National Guard or a military dependent, if you do not qualify as a North Carolina resident for tuition purposes, you may still be eligible to pay a reduced tuition rate if you meet the eligibility requirements for the Military Tuition Benefit (N.C. General Statute 116-143.3).

Note: The benefit only determines the amount of tuition you pay. You must still qualify academically for admission.

For additional information about the UNC–Chapel Hill military tuition benefits, please see the UNC–Chapel Hill Registrar's Web site (https://registrar.unc.edu/academic-services/residency/special-residency-provisions/military-benefits).

Policies on Prohibited Harassment and Nondiscrimination

The University is committed to providing an inclusive and welcoming environment for all members of our community. The University values safety, diversity, education, and equity and is firmly committed to maintaining a campus environment free from discrimination, harassment, and related misconduct. In accordance with its Policy Statement on

Nondiscrimination, the University does not unlawfully discriminate in offering equal access to its educational programs and activities or with respect to employment terms and conditions on the basis of an individual's age, color, disability, gender, gender expression, gender identity, genetic information, race, national origin, religion, sex, sexual orientation, or veteran status (collectively referred to as "protected status"). The University's protection of these statuses is grounded in federal law. Federal law also governs the University's response to sexual assault, sexual violence, interpersonal violence (including domestic and dating violence), and stalking. Such acts violate the essential dignity of our community member(s) and are contrary to our institutional values. Please visit these links to see the full text of the Policy on Prohibited Discrimination, Harassment and Related Misconduct (https://unc.policystat.com/policy/4514917/latest) and the Policy Statement on Nondiscrimination (https://unc.policystat.com/policy/4467906/latest).

Policy Statement on Gender Inclusive Language

The University of North Carolina at Chapel Hill is committed to providing an inclusive and welcoming environment for all members of our community. Consistent with that commitment, gender-inclusive terms (chair; first-year student; upper-level student, etc.) should be used on University documents, Web sites and policies.

A guidance handout ("Gender-Inclusive Language") may be found on the UNC Writing Center Web site (https://writingcenter.unc.edu/tips-and-tools/gender-inclusive-language). Please see the full text of the Policy Statement on Gender-Inclusive Language here (https://unc.policystat.com/policy/4745272/latest).

Residence Status for Tuition Purposes

Under state law, North Carolina residents are eligible for a lower tuition rate to state universities, including the University of North Carolina at Chapel Hill (the University).

In order to qualify as a resident for tuition purposes, a person must have established legal residence (or domicile) in North Carolina and maintained that legal residence for at least twelve (12) months prior to his or her classification as a resident for tuition purposes. Each student is classified as an in-state or out-of-state resident upon admission.

If you believe that you qualify as a North Carolina resident for tuition purposes, you may apply for in-state resident status by following the instructions provided by your admissions office. Continuing students who believe they may now qualify as a resident for tuition purposes may apply through the North Carolina Residency Determination Service (RDS). For additional information about the UNC–Chapel Hill residency requirements and procedures, please see the UNC–Chapel Hill Registrar's Web site (https://registrar.unc.edu/academic-services/residency).

Tuition Waiver for Family Members of Deceased or Disabled Emergency Workers

Certain family members of emergency workers killed or permanently disabled in the line of duty may become eligible for tuition-free enrollment.

For additional information about the UNC–Chapel Hill emergency worker tuition benefits, please see the UNC–Chapel Hill Registrar's Web site (https://registrar.unc.edu/academic-services/residency/emergency-worker-tuition-benefits).

Policies and Guidelines for a Cooperative Learning Environment

Teaching and learning occur simultaneously through a partnership between instructor and student. Instructors share knowledge, experience, and ideas with their students. Students process these thoughts, generate new ones, and share them with their teachers and classmates. In most cases, students and instructors communicate clearly and effectively. However, misunderstandings do occur. In an attempt to foster a positive academic environment, the Faculty Council, upon recommendation of the Educational Policy Committee, establishes the following policies and guidelines.

The Faculty Council resolves:

Part I. Policies

Section 1.

The Faculty Council recognizes and affirms the following policies. This recognition is not to be interpreted as precluding modification of any policy by the appropriate authority.

- The Honor Code. The faculty should inform students of the provisions of the honor code and be aware of their own responsibilities specified in the honor code. Faculty responsibilities are stated in the *Instrument of Student Judicial Governance*.
- Student Grievance Policy and Procedures (https://unc.policystat.com/policy/4469271/latest). According to UNC–Chapel Hill Student Grievance Committee procedures, students may file a grievance against a UNC–Chapel Hill employee, including faculty, EHRA non-faculty, staff, and student employee (when acting in the role of employee) when there is a violation of one of the following:
  a. The UNC–Chapel Hill Policy on Prohibited Discrimination, Harassment and Related Misconduct, Including Sexual and Gender-Based Harassment, Sexual Violence, Interpersonal Violence and Stalking (https://unc.policystat.com/policy/4514917/latest);
  b. The Americans with Disabilities Act (https://www.ada.gov);
  c. Title IX (http://eoc.unc.edu/our-policies/state-and-federal-laws/title-ix-and-vawa), which prohibits exclusion from participation on the basis of sex;
  d. Section 504 of the Rehabilitation Act of 1973 (https://accessibility.unc.edu/policies), which outlaws discrimination on the basis of a handicap; or
  e. The Family Educational Rights and Privacy Act, which allows students to challenge the content of their educational records.

  Copies of these policies can be obtained from the Office of the Dean of Students (https://odos.unc.edu). They contain information about how to file a grievance. A grievance based on incidents that occurred more than six months before the complaint was filed will not be considered.
- Student Access to Academic Records—Protection against Improper Disclosure. As stated in The Family Educational Rights and Privacy Act of 1974, students may have access to their full academic records. Individuals who are, or have been, in attendance at UNC–Chapel Hill may inspect and review their education records. Otherwise, education records are subject to confidentiality requirements as specified by law and may not be disclosed improperly. Requests for recommendations imply that the student has given consent to the disclosure of information related to ability and performance. Judgments of ability

and character may be provided under appropriate circumstances, normally with the knowledge or consent of the student. "Education records" are those records directly related to a student that are maintained by an educational institution. Particular University policy provisions are found in the *University of North Carolina at Chapel Hill's Policies and Procedures under the Family Educational Rights and Privacy Act of 1974.*

- Appealing a Grade. The University has systems for appealing a grade. The exact procedures vary among the academic units. Students should consult with their dean or department chairperson to obtain information about grade appeal procedures. See the section on "Grade Appeals" (p. 61) in this catalog.

Part II. Guidelines

Section 2.

The Faculty Council endorses the following guidelines for the faculty-student relationship. This endorsement shall not be construed as faculty legislation, is not intended to establish a contractual undertaking by the University or any individual, and shall not constitute the basis for civil action in a court or a claim in any administrative or judicial body of the University of North Carolina at Chapel Hill.

- *Clear Definition of Potential Honor Code Violations.* In an attempt to avoid unintended misunderstanding, instructors should clearly state what is acceptable in their classes. When study aids such as computers are allowed, the instructor is responsible for explaining what constitutes proper use of these items. These rules should be established at the beginning of the course and should not be changed without giving students proper notice.
- *Assignment of Graded Work during the Last Week of the Semester.* Instructors may not assign graded work during the last week of classes unless the course syllabus clearly states that such an assignment will be given.
- *Suggested Classroom Procedures.* In general, instructors are strongly encouraged to follow the guidelines for course design and classroom procedures recommended by the Center for Faculty Excellence. When students enter into a learning relationship, they have certain needs and expectations. They are entitled to information about course procedures, attendance policy, content, and goals. Instructors should provide a syllabus that describes the course and methods of evaluation. Particular attention should be paid to several areas of special concern to students, including provision of reserve readings and grading policy.
  Evaluated assignments should be returned to the students within a reasonable amount of time. Since part of the purpose of such assignments is to provide feedback, students should be given time to assess and to learn from their mistakes. Ideally, such assessment would take place while the relevant topics are still fresh in their minds. Extra credit, if offered, should be announced publicly and made available to the entire class.
- *Students Should Have Freedom of Expression.* Students should be free to take reasoned exception to the data or views offered in any course of study. They are responsible, however, for learning the content of any course of study in which they are enrolled. Incorrect facts and poorly supported arguments or opinions inevitably have an impact on grades. Nothing herein shall be construed to limit the freedom of the faculty to assign grades according to appropriate academic standards.
- *Responsibilities of Students and Teachers.* Just as students ought to expect instructors who are knowledgeable and well-prepared, so should teachers expect their students to be motivated, eager to learn, and actively engaged in class. It is the responsibility of teachers to make their courses serious intellectual experiences for themselves and for their students. It is the responsibility of students to take seriously the courses in which they enroll. Good teachers need good learners.

Students should understand that they are members of a community of scholars, and membership in such a community is not a passive activity. To be full participants in the educational community and to maximize the educational value of a class, preparation before class is necessary. Proper class preparation involves obtaining course materials as they are needed and completing assignments as they are due. Full participation in a class requires regular attendance, arriving on time and remaining until class conclusion, and active involvement in the work of the class. Students should also consider the extent of their own involvement in a class in assessing the educational value of the class.

Out-of-State Disclosures for Distance Education Programs

Disclosure for Indiana Residents Enrolled in UNC–Chapel Hill Distance Education Programs

The University of North Carolina at Chapel Hill is authorized by The Indiana Board for Proprietary Education, 101 W. Ohio St., Suite 670, Indianapolis, IN 46204.

Disclosure for Louisiana Residents Enrolled in UNC–Chapel Hill Distance Education Programs

The University of North Carolina at Chapel Hill is currently licensed by the Board of Regents of the State of Louisiana. Licenses are renewed by the State Board of Regents every two years. Licensed institutions have met minimal operational standards set forth by the state, but licensure does not constitute accreditation, guarantee the transferability of credit, nor signify that programs are certifiable by any professional agency or organization.

Disclosure for Minnesota Residents Enrolled in UNC–Chapel Hill Distance Education Programs

The University of North Carolina at Chapel Hill is registered as a private institution with the Minnesota Office of Higher Education pursuant to sections 136A.61 and 136A.71. Registration is not an endorsement of the institution. Credits earned at the institution may not transfer to all other institutions.

Disclosure for Washington Residents Enrolled in UNC–Chapel Hill Distance Education Programs

The University of North Carolina at Chapel Hill is authorized by the Washington Student Achievement Council and meets the requirements and minimum educational standards established for degree-granting institutions under the Degree-Granting Institutions Act. This authorization is subject to periodic review and authorizes The University of North Carolina at Chapel Hill to advertise, recruit, and offer field placements for specific degree programs. The council may be contacted for a list of currently authorized programs. Authorization by the Council does not carry with it an endorsement by the Council of the institution or its programs. Any person desiring information about the requirements of the act or the applicability of those requirements to the institution may contact the Council at P.O. Box 43430, Olympia, WA 98504-3430.

Family Educational Rights and Privacy Act

As a general rule, under the federal Family Educational Rights and Privacy Act (FERPA), personally identifiable information may not be released from a student's education records without his or her prior written consent.

To learn more about FERPA, please visit these links:

UNC–Chapel Hill FERPA Policy (https://unc.policystat.com/policy/4852661/latest)
UNC–Chapel Hill Registrar's Web site (https://registrar.unc.edu/academic-services/uncferpa)

TRANSCRIPTS

Transcripts of Record

A statement of official academic record includes all significant recorded information concerning the student's admission, classification, and scholarship. No partial or incomplete scholastic record will be given.

The student's transcript notes his or her academic eligibility status. A statement of honorable dismissal will not be granted to students whose conduct and character would not entitle them to remain enrolled at the University or whose transcripts contain a notation of any probation, suspension, or other temporary restriction imposed for unsatisfactory conduct and still in force when the statement is made.

The University does not release an official transcript unless tuition, fees, and other obligations due the University have been paid. Students may order a transcript electronically through the link in their ConnectCarolina Student Center. This process provides an electronic authorization that allows the Office of the University Registrar to release the transcript at the student's request. Students may inspect their academic records at the Office of the University Registrar, Student and Academic Services Building North. For more information on how to request a transcript, please visit the Office of the University Registrar's Web site (http://registrar.unc.edu/academic-services/transcripts-certifications/order-a-transcript).

Policy on Awarding of Undergraduate Degrees and Transcript Notations

The University of North Carolina at Chapel Hill will award only one bachelor's degree to a student, regardless of a possible second-major declaration, and will not admit or award a degree to a student who has already earned a bachelor's degree through another school of the University or at another college. Undergraduates in the professional schools in the Divisions of Academic Affairs and Health Affairs may earn a second major (not a second degree) in the College of Arts and Sciences or another professional school, but the first major must be in the professional school. Exception: a student may earn a second bachelor's degree in one of several health profession schools of the University after receiving a bachelor's degree if the student is admitted to the professional school.

Students pursuing two major fields of study for the bachelor of arts or bachelor of science degree earn only one degree and receive only one diploma. Both the diploma and the official transcript will indicate the degree and the two majors.

Students completing the requirements for both a bachelor of science degree and a bachelor of arts degree earn only the bachelor of science degree and receive only that diploma. Students completing the requirements for both a bachelor of arts degree and a bachelor of fine arts or bachelor of music degree earn only the bachelor of fine arts or bachelor of music degree and receive only that diploma. Note that these students must complete General Education requirements pertinent to the bachelor of arts as well as all requirements for the bachelor of fine arts or bachelor of music degree. Both the diploma and the official transcript will indicate the degree (with its major) and the second major.

Related Policies

Under no circumstances can a second undergraduate degree be awarded in Academic Affairs after one has been earned in Health Affairs. In the rare instance that an undergraduate student completes the requirements for an undergraduate degree and a graduate degree at the same time, the two degrees cannot be awarded at the same graduation. The undergraduate degree must be awarded first, and the graduate degree awarded at a subsequent degree award date.

Students who apply to graduate on a given degree award date, but who must complete requirements (such as courses with grades of IN or AB) after that degree award date, must reapply to graduate on a degree award date that follows the actual completion of requirements. Coursework taken after the degree award date cannot be used to change a degree already awarded, or to complete retroactively a degree, or to add retroactively an additional major or minor.

Adjustments may be made to a transcript only for one year following the date of graduation. Grade appeals, for instance, can be initiated after graduation. Courses with temporary grades not affecting graduation (AB or IN) can be completed after the date of graduation and the grade point average changed accordingly; however, the student's status at the time of graduation is not affected. Graduation with distinction or highest distinction is based only on the grade point average at the time that the degree is officially conferred and posted on the academic transcript, and may not be awarded retroactively. Students who neglect to declare a second major or a minor at the time of graduation may request that the dean's office verify that the requirements had been satisfied at the time of graduation. In such cases, indication of the second major or minor can be added to the transcript within one year after the graduation date.

Loan Deferments and Certification/ Verification of Enrollment Status

The Office of the University Registrar provides confirmation of student enrollment data to financial institutions, organizations, or agencies requiring proof of registration. Students can order an enrollment certification online through their ConnectCarolina Student Center. Additional information about ordering a certification (http://registrar.unc.edu/academic-services/transcripts-certifications/enrollment-certification) is available online or by calling (919) 962-3954.

DEGREE PROGRAMS

Degree Programs By Schools and Departments

The following list includes the graduate degrees offered through The Graduate School.

American Studies –

- American Studies – M.A., (p. 77) Ph.D. (p. 77)
- Folklore – M.A. (p. 77)

Anthropology – M.A. (p. 86), Ph.D. (p. 86)

Art and Art History –

- History – M.A., Ph.D (p. 103).
- Studio Art – M.F.A. (p. 103)

Biochemistry and Biophysics – M.S. (p. 113), Ph.D. (p. 113)

Bioinformatics and Computational Biology – M.S., Ph.D. (p. 119)

Biology – M.A., M.S. (p. 124), Ph.D. (p. 124)

Biomedical Engineering – M.S., Ph.D. (p. 138) (joint with North Carolina State University)

Business Administration – M.S. (Management), (p. 151) Ph.D. (p. 151)

Cell Biology and Physiology – M.S., (p. 166) Ph.D. (p. 166)

Chemistry – M.A., M.S., Ph.D. (p. 171)

City and Regional Planning – M.C.R.P., Ph.D. (p. 179)

Classics – M.A., Ph.D. (p. 189)

Clinical Rehabilitation and Mental Health Counseling – M.S. (p. 194)

Communication – M.A., Ph.D. (http://comm.unc.edu/graduate-studies)

Computer Science – M.S., Ph.D. (p. 209)

Dentistry –

- Dental Hygiene Education – M.S. (p. 219)
- Endodontics – M.S. (p. 219)
- Operative Dentistry and Biomaterials – M.S. (p. 219)
- Oral and Craniofacial Biomedicine – M.S., Ph.D. (p. 219)
- Oral and Maxillofacial Pathology – M.S. (p. 219)
- Oral and Maxillofacial Radiology – M.S. (p. 219)
- Orthodontics – M.S. (p. 219)
- Pediatric Dentistry – M.S. (p. 219)
- Periodontology – M.S. (p. 219)
- Prosthodontics – M.S. (p. 219)

Dramatic Art – M.F.A. (p. 233)

Ecology – M.A., M.S., Ph.D. (p. 290)

Economics – M.S., Ph.D. (p. 238)

Education –

- Curriculum and Instruction – Ed.D. (p. 247)
- Educational Innovation, Technology, and Entrepreneurship – M.A. (p. 247)
- Educational Leadership – Ed.D (p. 247).
- Master's/Doctorate in Education – M.A., Ph.D. (p. 247)
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Health Informatics –

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Media and Journalism –

Media and Communication – M.A., Ph.D. (p. 447)

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Psychology – M.A., (p. 547) Ph.D. (p. 547)

Public Administration – M.P.A. (p. 359)

Distance – M.P.A. (p. 359) (MPA@UNC)

Public Health – Master of Public Health (M.P.H. (p. 558)), MPH@UNC (distance)

Biostatistics – Dr.P.H., M.S., M.S.P.H., Ph.D. (p. 558)

Environmental Sciences and Engineering – M.S., M.S.E.E., M.S.P.H., Ph.D. (p. 558)

Epidemiology – M.S.C.R., M.S.P.H., Ph.D. (p. 558)

Health Behavior – Dr.P.H., M.S.P.H., Ph.D. (p. 558)

Health Policy and Management –

Residential – M.H.A., M.S.P.H., Ph.D. (p. 558)

Distance – Dr.P.H. (p. 558) in Public Health Executive Leadership, M.H.A. (p. 558), M.S.D.M. (p. 558) (not active)

Maternal and Child Health –

Residential – M.S.P.H., Ph.D. (p. 558)

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Public Health Leadership Program

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CERTIFICATE PROGRAMS

A certificate program is a formal program of courses and other related experiences in a field of specialization. In some disciplines, a certificate is akin to a professional credential, while in others, a certificate is recognition of competence in a given skill, practice, or field of study. Like an academic degree, a certificate program is offered by a host academic school, department, or curriculum and is related to an academic area of study. It carries academic credit. The campus encourages interdisciplinary and interinstitutional certificate programs where appropriate. All certificate programs that award academic credit, regardless of intended audience, are governed within The Graduate School through policies set forth by the Office of the Provost. Additional information and an official listing of current certificate programs are available on The Graduate School's Web site (http://gradschool.unc.edu/policies/certificates.html).

SCHOOLS AND DEPARTMENTS

Welcome! On the left navigation bar are links to The Graduate School's graduate programs. Included in each section is information about degrees offered, contact information, and specifics about admission and degree requirements.

DEPARTMENT OF AMERICAN STUDIES (GRAD)

Contact Information

Department of American Studies
Visit Program Website (http://amerstud.unc.edu), Visit Program Website (http://folklore.unc.edu)

Bernard Herman, Interim Chair

Tim Marr, Associate Chair

Michelle Robinson, Director of Graduate Studies

Patricia Sawin, Coordinator of the Folklore Program

The Department of American Studies offers a Ph.D. in American studies and an M.A. in folklore as well as a graduate minor in either American studies or folklore for students pursuing a graduate degree in other departments.

Ph.D. in American Studies

The Ph.D. degree in American studies provides rigorous training in interdisciplinary methods dedicated to the understanding of the complex cultures and history of the United States and its place in the world. Program graduates will be prepared both to teach at the college and university levels in American studies and related fields, including Southern studies, American Indian studies, literature, history, art history, cultural studies, and folklore, and to pursue professional opportunities in museums, historical sites, archives, or related fields requiring interdisciplinary perspectives and methodologies.

Admission

Students will be admitted to the Ph.D. in American studies from a range of academic programs, some with an undergraduate degree, some with a master's degree in American studies or another relevant discipline. Candidates for admission should be firmly grounded in the humanities, social sciences, or the arts. The best qualified students should articulate an interest in American history, literary, expressive and/or material culture, and/or critical theory; should show some familiarity with library, Web-based, and/or ethnographic research methods; and should offer a specific rationale for their interest in the UNC–Chapel Hill graduate program. In addition to The Graduate School application form, candidates for admission will present one or two writing samples, a statement of purpose, three letters of recommendation, official transcripts, GRE aptitude scores, and a curriculum vitae. Transfer credits may be awarded at the department's discretion on the basis of course equivalencies.

Applications will be accepted in December for matriculation the following August. Consult the Web site of The Graduate School (http://gradschool.unc.edu/admissions) for details, specific deadlines, and a link to the online application system.

M.A. in Folklore

The M.A. program in folklore focuses on the study of creativity and aesthetic expression in everyday life and on the social and political implications of this expression as it unfolds in contested arenas of culture. Not bound to traditional definitions of folklore, and committed to preparing students for ethical practice in a multicultural world, the program offers a flexible M.A. curriculum that readies students for both public practice and further academic study.

Admission

Applications will be accepted in December for matriculation the following August. Consult the Web site of The Graduate School (http://gradschool.unc.edu/admissions) for details, specific deadlines, and a link to the online application system.

The Department of American Studies also offers a Ph.D. in American studies; however, admission to the M.A.in folklore does not constitute admission to the Ph.D. in American studies.

Ph.D. in American Studies

The Ph.D. program in American studies balances flexibility and a focus on students' own areas of interest with requirements designed to insure knowledge of key issues and texts in the interdisciplinary study of American culture. Ph.D. students must complete 20 courses (60 hours). Those who enter the program with an M.A. may count up to 18 hours of previous study toward the degree. Three specific courses–AMST 700, AMST 701, and AMST 902–are required. Students generally take six other courses offered by American Studies core faculty and the remainder of their courses in a variety of associated graduate programs, including English, history, music, and religious studies. Those who enter the program with a B.A. degree also undertake the M.A. Research Seminar (AMST 901) and the Capstone Project (AMST 992). Students pursuing the Ph.D. take comprehensive exams in three areas of specialization, developed in consultation with their advisors, and complete a dissertation. They are also expected to participate actively in the departmental colloquium.

Students who join the department with a master's degree can usually expect to spend one year less on coursework than those who enter with an undergraduate degree, although students admitted with a master's degree in a field other than American studies may need to take some additional courses as they progress toward the American studies Ph.D. The graduate studies committee will make the determination on an individual basis. Students who enter with an undergraduate degree earn the M.A. at the end of their second year, upon completion and defense of the capstone project, before proceeding to preparation for comprehensive examinations and the dissertation.

Research Proficiency Certification

Each Ph.D. candidate is expected, as a condition of advancing to candidacy, to select and develop an individualized proficiency that will improve the quality and impact of their research and enhance the capacity they will wield in their professional lives. This empowers students to *add value* to their education by defining and pursuing an enabling skill set that can deepen the dimensions of their research, practice, and service.

Examples of useful proficiencies might include:

- the study of a relevant language other than English, including Cherokee offered in our department;
- ethnographic field work;
- oral history interview and recording techniques;
- digital modes of coding, mapping, and visualization;
- training in the processes of public planning and policy;
- facility in survey methods and quantitative analysis;

- skills in documentary production;
- archival curation and museum programming.

The proficiency must be in addition to or extend the skill set that students bring with them at matriculation. Certification of this proficiency is met by two requirements:

- the completion of at least one course or an equivalent process of training;
- a practical demonstration of its acquisition.

Incoming doctoral students have the responsibility to work with their preliminary advisor to select a proficiency and prepare a plan for its attainment before they complete their prospectus and become candidates for the Ph.D. A written application on a departmental form will spell out which skill set they will acquire to meet this certification, describe the extent of their present competency, explain why it is relevant to their research, and outline how their plan enables them to gain proficiency. Incoming students will submit their proposal to the Graduate Studies Committee by October 1 of their first semester. This committee will meet to approve or suggest alternations to this proposal by November 15. At the end of the fall of the second year, the director of graduate studies will follow up and confirm with students and their dissertation directors whether the benchmarks of attainment have been fulfilled, and if not, what plan is in place to complete the requirement.

Colloquium

All students enrolled in the American studies graduate program are expected to participate throughout their graduate careers in a monthly colloquium in which faculty and M.A. and Ph.D. candidates will offer presentations of their work-in-progress. The colloquium exposes graduate students to the research interests of faculty in American studies and allied fields and more advanced students, provides opportunities for sharing discourses and ideas, and may also include visiting graduate students and faculty from international partner institutions. The colloquium is the collegial wellspring of the program, the intellectual and social center of the American Studies community. The conversation occurring there will naturally both inform and be informed by classroom work, particularly in AMST 700 and AMST 701 will help to shape, against the backdrop of individual specializations, a common discourse; and will provide a site for the formation of the American studies social and intellectual community.

Comprehensive Exams

Students will undertake comprehensive exams in the spring of the third year for students admitted with a B.A. and in the spring of the second year for students admitted with an M.A. Students and faculty members will work collaboratively, with the aim of integrating the best work with the most current scholarship in particular fields. Each student will assemble a three-person examination advisory committee (usually consisting of two faculty members from the Department of American Studies and one from a related department) and in consultation with committee members will develop reading lists for three field concentrations. In two of the field concentrations the student will undertake a written exam, and in the other the student will produce a professional portfolio. Shortly after passing the written exams and submitting the portfolio, each student will undergo an oral exam covering the three concentrations. Students are expected to receive passing evaluations in all three examination areas as well as as on the oral exam. Any student who fails one or more sections of the exam may repeat the failed section(s) only once.

Portfolio

Each student will prepare a professional portfolio directed toward teaching, museum, archival, public policy, digital humanities, publicly engaged humanities, or other appropriate application of the field. The portfolio will constitute the written examination in one of the student's chosen field areas. A portfolio for teaching will include the syllabus for an upper-division course in the area of specialization, together with a bibliography and sample lesson plans. A portfolio for those interested in museum studies or public programming will include a comprehensive framework for an exhibit or similar project, together with a bibliography and sample components. Students with other areas of specialization may work with their advisors to develop plans for an appropriate portfolio of similar scope.

Teaching and Professional Development

All students will be expected to teach as part of their service requirement for financial aid. Students will most often serve as teaching assistants in undergraduate courses taught by members of the faculty. More advanced students may have the opportunity to develop and teach undergraduate courses in their areas of specialization. The teaching portfolio may provide the basis for such an independently taught course.

Doctoral Dissertation and Defense

The dissertation constitutes an original contribution to knowledge that advances the interdisciplinary understanding of American culture. It may be based upon archival research, analysis of texts and/or cultural artifacts, ethnographic research, or a combination. The student will assemble a five-person doctoral advisory committee, which must include three faculty members from the Department of American Studies. The student ordinarily completes the dissertation prospectus and refines it with the advice of the doctoral advisory committee at the end of the semester that begins with their successful completion of the comprehensive exams and the acceptance of the portfolio.The prospectus must be approved by the committee following a prospectus defense. The program is designed to enable students to complete the doctoral dissertation during the third or fourth year for the students admitted with a M.A., and the fourth or fifth year for students beginning the program with a B.A. Upon completion of the dissertation, all degree candidates must successfully defend their dissertation before their doctoral advisory committee.

M.A. in Folklore

The M.A. program in folklore balances flexibility and a focus on students' own areas of interest with requirements designed to insure knowledge of key issues and texts in the discipline. Master's students must complete 10 courses (30 hours). Two specific courses—Approaches to Folklore Theory (FOLK 850) and The Art of Ethnography (FOLK 860)—are required, and students must take three additional courses offered by core faculty. Students take the remainder of their courses in a variety of associated graduate programs, including American studies, anthropology, communication, English, history, music, and religious studies, or they may take advantage of the opportunity to enroll in courses at neighboring universities, particularly those offered at the Center for Documentary Studies at Duke University. Students pursuing an M.A. must compile a critical literature review at the beginning of their third semester and must complete and defend a thesis at the end of their second year of study.

Graduate Minor in American Studies

The American studies graduate minor serves students admitted in a variety of departments, including art, communications studies, English,

history, and religious studies. Interdisciplinary training in the study of American culture can enhance scholarly and teaching capabilities for these students. The object of study is American culture in all its diversity, and the methodologies include historical, literary, and visual analysis as well as ethnography, sociology, economics, and political science as appropriate. To apply, contact the director of graduate studies.

The graduate minor consists of five courses, to be selected with the advice of the chair or director of graduate studies in American studies. These courses should include AMST 700 or AMST 701 and at least two other graduate courses with an AMST designation. Additional courses may be chosen from related departments. These courses must be in addition to those required for the degree in the student's major field of study.

Graduate Minor in Folklore

Students pursuing the Ph.D. in another department at UNC–Chapel Hill may qualify for a minor in folklore by completing six courses, chosen in consultation with the coordinator of the Folklore Program. These courses must be in addition to those required for the degree in the student's major field of study.

Professors

Robert Allen, Digital Humanities, American Cultural History, Family History
Daniel Cobb, American Indian and Indigenous Studies, American Indian History, Politics and Activism, Ethnohistorical Methods, Biography and Memory, Global Indigenous Rights
Elizabeth Engelhardt, Southern Cultures, Food, Appalachia, Feminism, Literature, Region and Place
Bernard Herman, Material and Visual Culture, Folklore and Folklife Cultures of the American South, Vernacular Art[1]
Sharon Holland, Critical Race Theory, Feminist Theory, Queer Theory, Sexuality Studies, Animal Studies
Rachel Willis, Global American Studies, Transportation Planning, Labor Economics, Service Learning, Experiential and Higher Education

Associate Professors

Glenn D. Hinson (Anthropology), Ethnography, African American Expressive Culture, Belief Systems, Vernacular Art, Public Folklore, American South[1]
Tim Marr, 19th-Century American Literary and Cultural History, Transnational American Studies, Religion in American Culture, Islam in/and America, Herman Melville
Michelle Robinson, 19th- and 20th-Century United States Religious History, 19th- and 20th- Century American Literature, U.S. Cinema
Patricia Sawin, Narrative, Discourse, Festival, Culture of Adoption[1]
Jenny Tone-Pah-Hote, American Indian and Indigenous Studies, American Indian History, Expressive and Material Culture

Assistant Professors

Gabrielle Berlinger, Material Culture, Ritual, Jewish Folklore and Ethnology, Ethnography, Public Folklore, Museum Anthropology[1]
Ben Frey, Sociolinguistics, Language Shift, Cherokee Language
Seth Kotch, Digital Humanities, Modern South, Oral History, Criminal and Social Justice
Keith Richotte Jr., American Indian Law and Policy, Legal History, Constitutionalism

Adjunct Faculty in American Studies

Daniel Anderson (English and Comparative Literature), Digital Humanities, Rhetoric, Alt-Scholarship
Fitzhugh Brundage (History), American History since the Civil War, Southern History, Historical Memory
Maggie Cao (Art History), Art and Technology, Landscape, Material Culture, Ecocriticism
Claude Clegg (African, African American and Diaspora Studies; History), African American History, Modern U.S. History, Migrations and Diaspora, Nationalism, Social Movements
Kathleen DuVal (History), Early America, Cross-Cultural Relations on North American Borderlands
Philip Gura (English and Comparative Literature), American Literature, American Studies
Lawrence Grossberg (Communication), Media and Cultural Studies
Amy Hertel, Native American Studies
Jennifer Ho (English and Comparative Literature), 20th-Century American Literature, Asian-American Literature, Critical Theory and Cultural Studies
Malinda Maynor Lowey (History), Native American History, Southern History, Historical Geography, Foodways, Race and Ethnicity, Community-Engaged Research
Jocelyn Neal (Music), 20th-Century Music Theory, Popular Music[1]
Michael Palm (Communication), Technology and Everyday Life, Politics and Economics of Media Culture, Telecommunications History, Work, Labor and Consumption Studies
Eliza Richards (English and Comparative Literature), 19th-Century American Literature, Gender Studies, American Poetry
Katherine Roberts (Center for the Study of the American South), Landscape, Vernacular Architecture
Rachel Seidman (Southern Oral History Program), U.S. Women's History, Oral History
Robyn Schroeder (Humanities for the Public Good), Public Humanities
William Sturkey (History), Modern American History, African American History, Race in the South, Civil Rights
Jane Thrailkill (English and Comparative Literature), 19th-Century American Literature, Medical Humanities
Timothy Tyson (Center for Documentary Studies at Duke University), American Christianity, Southern Culture, Civil Rights, African American History

[1] *Core members of the folklore program*
For a complete list of adjunct and affiliated faculty, click here (https://americanstudies.unc.edu/people-pages/faculty).

Retired Professors

Marcie Cohen Ferris, Southern Jewish History, Food Studies, Southern Studies
William Ferris, Southern Music and Literature, Documentary Studies, American South
Trudier Harris, African American Folklore and Literature
John Kasson, American Intellectual and Cultural History, Technology and Society, Art and Literature, Popular Culture
Joy Kasson, American Visual Culture, Literature, Popular Culture, Cultural History
Townsend Luddington, American Literature, Art, and Culture
Daniel W. Patterson, Ballads, American Folksong, Religious Folklife, Gravestones, American South
Theda Perdue, Native American History
Charles Gordon Zug, Pottery, Material Culture, Narrative, Maritime Folklife, Folk Art, American South

AMST

Advanced Undergraduate and Graduate-level Courses

AMST 410. Senior Seminar in Southern Studies. 3 Credits.
We will engage such topics as race, immigration, cultural tourism, and memory to consider conceptions of the South. Students will research a subject they find compelling and write a 20- to 25-page paper.
Gen Ed: HS, EE- Mentored Research, NA.
Grading status: Letter grade.

AMST 420. Theories in American Studies. 3 Credits.
This course will move through prevalent theories in American studies to familiarize students with theoretical concepts and to ascertain both the advantages and pitfalls of theoretical landscapes. Students will become familiar with critical race (postcoloniality and settler-colonialism, for example), feminist, "queer" theories, historical materialism, political economy, postcolonialism, and bio-power.
Grading status: Letter grade.

AMST 439. Meaning and Makers: Indigenous Artists and the Marketplace. 3 Credits.
This course examines how indigenous artists have negotiated, shaped, and pursued markets and venues of display ranging from "fine" art markets, galleries, and museums to popular markets associated with tourism.
Gen Ed: VP, CI, GL.
Grading status: Letter grade.

AMST 440. American Indian Poetry. 3 Credits.
This course explores the relation of American Indian poetry and music in English to the history and culture of indigenous communities and their relation to the United States.
Gen Ed: LA.
Grading status: Letter grade.

AMST 460. Rising Waters: Strategies for Resilience to the Challenges of Climate and the Built Environment. 3 Credits.
This service-learning seminar examines water threats to port cities and low-lying areas from sea-level rise, extreme weather, and inadequate infrastructure. The focus is on the Americas, small and barrier islands, and high hazard regions including the South East and Gulf Coast communities. The APPLES project will focus on North Carolina resilience strategies.
Gen Ed: SS, CI, EE- Service Learning.
Grading status: Letter grade.

AMST 475. Documenting Communities. 3 Credits.
Covers the definition and documentation of communities within North Carolina through research, study, and field work of communities. Each student produces a documentary on a specific community. Previously offered as AMST 275. Honors version available
Gen Ed: SS, CI, EE- Field Work.
Grading status: Letter grade.

AMST 475H. Documenting Communities. 3 Credits.
Covers the definition and documentation of communities within North Carolina through research, study, and field work of communities. Each student produces a documentary on a specific community.
Gen Ed: SS, CI, EE- Field Work.
Grading status: Letter grade.

AMST 482. Images of the American Landscape. 3 Credits.
This course will consider how real estate speculation, transportation, suburbanization, and consumerism have shaped a landscape whose many representations in art and narrative record our ongoing struggle over cultural meaning.
Gen Ed: HS, NA.
Grading status: Letter grade.

AMST 483. Seeing the USA: Visual Arts and American Culture. 3 Credits.
Examines the ways in which visual works - paintings, photographs, sculpture, architecture, film, advertising, and other images - communicate the values of American culture and raise questions about American experiences.
Gen Ed: VP, NA.
Grading status: Letter grade.

AMST 485. Folk, Self-Taught, Vernacular, and Outsider Arts. 3 Credits.
Drawing on American and international examples, this course addresses a body of art that occupies the borderlands of contemporary art, examining questions of authenticity, dysfunction, aesthetics, and identity.
Gen Ed: VP.
Grading status: Letter grade.

AMST 486. Shalom Y'all: The Jewish Experience in the American South. 3 Credits.
This course explores ethnicity in the South and focuses on the history and culture of Jewish Southerners from their arrival in the Carolinas in the 17th century to the present day.
Gen Ed: HS, CI, US.
Grading status: Letter grade
Same as: JWST 486.

AMST 487. Early American Architecture and Material Life. 3 Credits.
This course explores, through lecture and discussion, the experiences of everyday life from 1600 through the early 19th century, drawing on the evidence of architecture, landscape, images, and objects.
Gen Ed: VP, NA.
Grading status: Letter grade.

AMST 488. No Place like Home: Material Culture of the American South. 3 Credits.
Seminar will explore the unique worlds of Southern material culture and how "artifacts" from barns to biscuits provide insight about the changing social and cultural history of the American South.
Gen Ed: VP, NA.
Grading status: Letter grade
Same as: FOLK 488.

AMST 489. Writing Material Culture. 3 Credits.
A reading seminar that examines multiple critical perspectives that shape the reception and interpretation of objects, with a particular emphasis on things in American life.
Gen Ed: VP.
Grading status: Letter grade.

AMST 493. Internship. 1-3 Credits.
Permission of the department and the instructor. Internship. Variable credit.
Gen Ed: EE- Academic Internship.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

AMST 498. Advanced Seminar in American Studies. 3 Credits.
Graduate or junior/senior standing. Examines American civilization by studying social and cultural history, criticism, art, architecture, music, film, popular pastimes, and amusements, among other possible topics.
Gen Ed: VP, NA.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

AMST 510. Federal Indian Law and Policy. 3 Credits.
This course gives an introduction to the American government's law and policy concerning tribal nations and tribal peoples. We examine a number of legal and political interactions to determine how the United States has answered the "Indian problem" throughout its history and the status of tribal peoples and nations today.
Gen Ed: HS, US.
Grading status: Letter grade.

AMST 511. American Indians and American Law. 3 Credits.
This course explores the history of Native interaction with the American legal system in order to understand how the law affects Native peoples and others today. Students are encouraged (but not required) to take AMST 510 before enrolling in this course.
Gen Ed: HS, US.
Grading status: Letter grade.

AMST 512. Race and American Law. 3 Credits.
This class will explore the intersection between race and American law, both in a historical and contemporary context. It will ask how both of these major social forces have informed and defined each other and what that means for how we think about race and law today.
Gen Ed: US.
Grading status: Letter grade.

AMST 641. Communicating Water Challenges of Climate Change with the Visual and Performing Arts. 3 Credits.
Climate change means water challenges that threaten people, property, and the existence of nation states. Severe precipitation events from warmer air holding more water, sea-level rise, and more intense hurricanes, mean flooding, water quality, and foodshed issues for more than half the world's population. Drought, resulting wildfires, and the availability of life-sustaining water is a problem in others. The visual and performing arts are used to explore more effective ways to communicate this growing crisis.
Gen Ed: CI, US.
Grading status: Letter grade.

AMST 671. Introduction to Public History. 3 Credits.
Introduces the theory, politics, and practice of historical work conducted in public venues (museums, historic sites, national parks, government agencies, archives), directed at public audiences, or addressed to public issues.
Gen Ed: HS, EE- Mentored Research, NA.
Grading status: Letter grade
Same as: HIST 671.

AMST 685. Literature of the Americas. 3 Credits.
Multidisciplinary examination of texts and other media of the Americas, in English and Spanish, from a variety of genres. Two years of college-level Spanish or the equivalent strongly recommended.
Gen Ed: LA, NA.
Grading status: Letter grade
Same as: ENGL 685, CMPL 685.

AMST 691H. Honors in American Studies. 3 Credits.
Directed independent research leading to the preparation of an honors thesis and an oral examination on the thesis. Required of candidates for graduation with honors in American studies who enroll in the class once permission to pursue honors is granted.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

AMST 692H. Honors in American Studies. 3 Credits.
Directed independent research leading to the preparation of an honors thesis and an oral examination on the thesis. Required of candidates for graduation with honors in American studies who enroll in the class once permission to pursue honors is granted.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

AMST 700. The History and Practices of American Studies. 3 Credits.
This course will acquaint students with the texts, contexts, issues, and controversies in American Studies as a field of study. It is required for most American studies graduate students and open to graduate students in other departments.
Grading status: Letter grade.

AMST 701. Interdisciplinary Research Methods. 3 Credits.
This course will focus on techniques of American studies investigation. Various faculty members will make presentations highlighting approaches including Southern studies, American Indian studies, Material Culture studies, and new media.
Grading status: Letter grade.

AMST 702. Readings in American Studies. 3 Credits.
This course takes a specific topic to explore in depth, and through this investigation critically examines contending perspectives on the field. Topics will change depending on faculty interest.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

AMST 714. Incarceration in America. 3 Credits.
This course explores the theoretical underpinnings, history, and contemporary controversies around incarceration in the United States. It begins by exploring early articulations of the need for imprisonment as punishment, examines how that history unfolded in the 18th, 19th, and 20th centuries, and engages with contemporary debates about mass incarceration and its impacts on American communities.
Grading status: Letter grade.

AMST 715. Community Histories and Public Humanities. 3 Credits.
Community Histories and Public Humanities explores how communities have been, are, and might be preserved, documented, represented, and remembered. Focuses on the use of digitized primary sources and tools to engage communities in public history/humanities initiatives using interdisciplinary approaches informed by American Studies and Folklore. Participants have opportunity to work on ongoing community history/archiving projects. Project-based work is supported by reading in memory studies, representation, sites of trauma, community archiving, and oral history.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

AMST 775. Graduate Seminar in Food Studies: Interdisciplinary Research. 3 Credits.
This class exposes graduate students to interdisciplinary food studies research in the humanities. We use farm records, cookbooks, novels, poetry, photographs, songs, documentaries, and oral histories to investigate American food communities. We are not aiming to define food studies, but are looking at its questions, problems, theories, and methods.
Grading status: Letter grade.

AMST 795. Digital Humanities Field Experience. 1-3 Credits.
An opportunity for students to translate theory into practice as they make meaningful contributions to digital humanities projects. Field experience can be tailored to fit the intellectual and professional needs of individual students, who may choose to work on projects in cultural heritage institutions or within academic departments on campus.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

AMST 840. Digital Humanities/Digital American Studies. 3 Credits.
This course, explores the application of digital technologies to the materials, questions, and practices of humanities scholarship, particularly as related to enduring topics in American Studies scholarship and community engagement. Students will work on group digital history projects in collaboration with local cultural heritage organizations.
Grading status: Letter grade.

AMST 850. Digital Humanities Practicum. 3 Credits.
This practicum blends graduate seminar discussions with hands-on training in the digital humanities. Students will work in the Digital Innovation Lab, contributing to real-life projects while developing their own professional development goals. Students will emerge with a deeper understanding of and experience with digital humanities approaches, practices, and issues.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

AMST 878. Readings in Native American History. 3 Credits.
Readings in and discussions of the major works in Native American history.
Grading status: Letter grade
Same as: HIST 878.

AMST 880. American Film and Media History. 3 Credits.
Topically focused examination of social and cultural aspects of cinema and media history in the United States, including cinema/media audiences, reception, and historiography.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

AMST 890. Seminar in American Studies. 3 Credits.
Graduate seminar exploring selected topics in the theory and practice of American Studies.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

AMST 895. Directed Readings. 3 Credits.
Permission of the instructor. Independent reading programs for graduate students.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

AMST 900. Directed Studies. 0.5-15 Credits.
Permission of the instructor. Topics and credit hours vary according to the needs and interests of the individual student and the professor supervising the research project.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

AMST 901. M.A. Research Seminar. 3 Credits.
Students will be introduced to issues of project design, develop a prospectus for the M.A. capstone project, work with an advisor, and prepare full drafts of their projects.
Grading status: Letter grade.

AMST 902. Ph.D. Research Seminar. 3 Credits.
A review of current scholarship in American Studies, with the aim of creating the final reading list for the comprehensive exams, and an introduction to dissertation design.
Grading status: Letter grade.

AMST 948. Research in Native American History. 3 Credits.
This course introduces graduate students to research methods in Native American history, including the methodology of ethnohistory and the techniques of compiling a source base, taking notes, and outlining.
Grading status: Letter grade
Same as: HIST 948.

AMST 992. Master's (Non-Thesis). 3 Credits.
Non-Thesis Option
Repeat rules: May be repeated for credit.

AMST 993. Master's Research and Thesis. 3 Credits.
Master's Thesis
Repeat rules: May be repeated for credit.

AMST 994. Doctoral Research and Dissertation. 3 Credits.
Individual work on the doctoral dissertation, pursued under the supervision of the Ph.D. advisor.
Repeat rules: May be repeated for credit.

FOLK

Advanced Undergraduate and Graduate-level Courses

FOLK 424. Ritual, Festival, and Public Culture. 3 Credits.
This course explores rituals, festivals, and public cultural performances as forms of complex, collective, embodied creative expression. As sites of popular celebration, conflict resolution, identity definition, and social exchange, they provide rich texts for folkloristic study. We consider how local and global forces both sustain and challenge these forms.
Gen Ed: SS, EE- Field Work.
Grading status: Letter grade
Same as: ANTH 424.

FOLK 428. Religion and Anthropology. 3 Credits.
Religion studied anthropologically as a cultural, social, and psychological phenomenon in the works of classical and contemporary social thought. Honors version available
Gen Ed: SS.
Grading status: Letter grade
Same as: ANTH 428, RELI 428.

FOLK 428H. Religion and Anthropology. 3 Credits.
Religion studied anthropologically as a cultural, social, and psychological phenomenon, in the works of classical and contemporary social thought.
Gen Ed: SS.
Grading status: Letter grade
Same as: ANTH 428H, RELI 428H.

FOLK 429. Culture and Power in Southeast Asia. 3 Credits.
The formation and transformation of values, identities, and expressive forms in Southeast Asia in response to forms of power. Emphasis on the impact of colonialism, the nation-state, and globalization.
Gen Ed: SS, BN, GL.
Grading status: Letter grade
Same as: ANTH 429, ASIA 429.

FOLK 435. Consciousness and Symbols. 3 Credits.
This course explores consciousness through symbols. Symbols from religion, art, politics, and self are studied in social, psychological, historical, and ecological context to ascertain meanings in experience and behavior.
Gen Ed: SS.
Grading status: Letter grade
Same as: ANTH 435, CMPL 435.

FOLK 455. Ethnohistory. 3 Credits.
Integration of data from ethnographic and archaeological research with pertinent historic information. Familiarization with a wide range of sources for ethnohistoric data and practice in obtaining and evaluating information. Pertinent theoretical concepts will be explored.
Gen Ed: HS.
Grading status: Letter grade
Same as: ANTH 455.

FOLK 470. Medicine and Anthropology. 3 Credits.
This course examines cultural understandings of health, illness, and medical systems from an anthropological perspective with a special focus on Western medicine.
Gen Ed: SS.
Grading status: Letter grade
Same as: ANTH 470.

FOLK 473. Anthropology of the Body and the Subject. 3 Credits.
Anthropological and historical studies of cultural constructions of bodily experience and subjectivity are reviewed, with emphasis on the genesis of the modern individual and cultural approaches to gender and sexuality.
Gen Ed: SS.
Grading status: Letter grade
Same as: ANTH 473.

FOLK 476. Graffiti, Gods, and Gardens: Urban Folklore. 3 Credits.
What is the relationship between distinctive features of urban environments and the expressive forms found in those settings? This course explores the impact of the urban setting on folk traditions. We examine how people transform urban spaces into places of meaning through storytelling, festival, ritual, food, art, music, and dance.
Gen Ed: VP, EE- Field Work, US.
Grading status: Letter grade.

FOLK 480. Vernacular Traditions in African American Music. 4 Credits.
Explores performance traditions in African American music, tracing development from African song through reels, blues, gospel, and contemporary vernacular expression. Focuses on continuity, creativity, and change within African American aesthetics. Previously offered as FOLK 610/AAAD 432.
Gen Ed: HS, EE- Field Work, US.
Grading status: Letter grade
Same as: AAAD 480.

FOLK 481. Jewish Belongings: Material Culture of the Jewish Experience. 3 Credits.
What makes an object "Jewish"? This seminar examines how we think about, animate, repurpose, and display "Jewish" objects in the public realm, cultural institutions, religious spaces, and the home. We consider how makers and users negotiate objects' various meanings within the domains of prayer, performance, entertainment, and exhibition. The class curates a final group exhibition of Jewish material culture based on original fieldwork.
Gen Ed: VP, EE- Field Work, US.
Grading status: Letter grade
Same as: JWST 481.

FOLK 484. Discourse and Dialogue in Ethnographic Research. 3 Credits.
Study of cultural variation in styles of speaking applied to collection of ethnographic data. Talk as responsive social action and its role in the constitution of ethnic and gender identities.
Gen Ed: SS, CI, US.
Grading status: Letter grade
Same as: ANTH 484, LING 484.

FOLK 487. Everyday Stories: Personal Narrative and Legend. 3 Credits.
Oral storytelling may seem old-fashioned, but we tell true (or possibly true) stories every day. We will study personal narratives (about our own experiences) and legends (about improbable, intriguing events), exploring the techniques and structures that make them effective communication tools and the influence of different contexts and audiences.
Gen Ed: CI, US.
Grading status: Letter grade
Same as: ENGL 487.

FOLK 488. No Place like Home: Material Culture of the American South. 3 Credits.
Seminar will explore the unique worlds of Southern material culture and how "artifacts" from barns to biscuits provide insight about the changing social and cultural history of the American South.
Gen Ed: VP, NA.
Grading status: Letter grade
Same as: AMST 488.

FOLK 490. Topics in Folklore. 3 Credits.
Topics vary from semester to semester.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

FOLK 495. Field Research. 3 Credits.
Research at sites that vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

FOLK 496. Directed Readings in Folklore. 3 Credits.
Permission of the department. Topic varies depending on the instructor.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

FOLK 502. Myths and Epics of the Ancient Near East. 3 Credits.
An examination of Babylonian, Canaanite, Egyptian, Hittite, and Sumerian texts from the prebiblical era, focusing on representative myths, epics, sagas, songs, proverbs, prophecies, and hymns. Honors version available
Gen Ed: LA, WB.
Grading status: Letter grade
Same as: RELI 502.

FOLK 502H. Myths and Epics of the Ancient Near East. 3 Credits.
An examination of Babylonian, Canaanite, Egyptian, Hittite, and Sumerian texts from the prebiblical era, focusing on representative myths, epics, sagas, songs, proverbs, prophecies, and hymns.
Gen Ed: LA, WB.
Grading status: Letter grade
Same as: RELI 502H.

FOLK 525. Culture and Personality. 3 Credits.
Systems theory used to conceptualize relationship between cultural patterns and individual minds. Functional, dysfunctional, and therapeutic processes considered. Examples from Africa, Asia, Europe, and Native America. Lectures, films, recitations.
Gen Ed: SS.
Grading status: Letter grade
Same as: ANTH 525.

FOLK 537. Gender and Performance: Constituting Identity. 3 Credits.
Examines the culturally and historically variable ways in which individuals constitute themselves as cis- or transgendered subjects, drawing upon extant expressive resources, modifying them, and expanding options available to others. Performance of self as the product of esthetically marked or unmarked, everyday actions.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: ANTH 537, WGST 438.

FOLK 550. Introduction to Material Culture. 3 Credits.
An introduction to material folk culture, exploring the meanings that people bring to traditional arts and the artful creations with which they surround themselves (e.g., architecture, clothing, altars, tools, food).
Gen Ed: VP.
Grading status: Letter grade.

FOLK 560. Southern Literature and the Oral Tradition. 3 Credits.
Course considers how Southern writers employ folklore genres such as folk tales, sermons, and music and how such genres provide structure for literary forms like the novel and the short story.
Gen Ed: HS, NA, US.
Grading status: Letter grade.

FOLK 562. Oral History and Performance. 3 Credits.
This course combines readings and field work in oral history with the study of performance as a means of interpreting and conveying oral history texts. Honors version available
Gen Ed: EE- Performing Arts.
Grading status: Letter grade
Same as: COMM 562, HIST 562, WGST 562.

FOLK 562H. Oral History and Performance. 3 Credits.
This course combines readings and field work in oral history with the study of performance as a means of interpreting and conveying oral history texts.
Gen Ed: EE- Performing Arts.
Grading status: Letter grade
Same as: COMM 562H, HIST 562H, WGST 562H.

FOLK 565. Ritual, Theatre, and Performance Art. 3 Credits.
Explores how each of these forms of performance communicates meaning and feeling and points to possibility. Students develop performances in each mode, informed by readings in anthropology and directing theory.
Requisites: Prerequisite, COMM 160; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: COMM 362.

FOLK 571. Southern Music. 3 Credits.
Explores the history of music in the American South from its roots to 20th-century musical forms, revealing how music serves as a window on the region's history and culture.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: HIST 571.

FOLK 587. Folklore in the South. 3 Credits.
An issue-oriented study of Southern folklore, exploring the ways that vernacular artistic expression (from barns and barbecue to gospel and well-told tales) come to define both community and region.
Gen Ed: VP, NA.
Grading status: Letter grade.

FOLK 670. Introduction to Oral History. 3 Credits.
Introduces students to the uses of interviews in historical research. Questions of ethics, interpretation, and the construction of memory will be explored, and interviewing skills will be developed through field work.
Gen Ed: HS, CI.
Grading status: Letter grade
Same as: HIST 670.

FOLK 675. Ethnographic Method. 3 Credits.
Intensive study and practice of the core research methods of cultural and social anthropology.
Gen Ed: SS, CI.
Grading status: Letter grade
Same as: ANTH 675.

FOLK 688. Observation and Interpretation of Religious Action. 3 Credits.
Permission of the instructor. Exercises (including field work) in learning to read the primary modes of public action in religious traditions, e.g., sermons, testimonies, rituals, and prayers.
Gen Ed: SS, EE- Mentored Research.
Grading status: Letter grade
Same as: ANTH 688, RELI 688.

FOLK 690. Studies In Folklore. 3 Credits.
Topic varies from semester to semester.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

FOLK 691H. Honors Project in Folklore. 3 Credits.
Permission of the instructor. For honors candidates. Ethnographic and/or library research and analysis of the gathered materials, leading to a draft of an honors thesis.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

FOLK 692H. Honors Thesis in Folklore. 3 Credits.
Writing of an honors thesis based on independent research conducted in FOLK 691H. Open only to senior honors candidates who work under the direction of a faculty member.
Requisites: Prerequisite, FOLK 691H.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

FOLK 790. Public Folklore. 3 Credits.
A graduate seminar addressing theory and praxis in public sector cultural work. Focusing on public folklore, this course explores broad issues of representation, cultural politics, and cultural tourism.
Grading status: Letter grade.

FOLK 841. Performance Ethnography. 3 Credits.
This seminar focuses on methods of ethnography and fieldwork ethics. Performance as theory and practice informs methodological inquiries as well as the analysis of specific ethnographic texts and case studies.
Grading status: Letter grade
Same as: COMM 841.

FOLK 842. Seminar in Performance and Cultural Studies. 3 Credits.
This course focuses on performance-related issues in the emergent field of cultural studies.
Grading status: Letter grade
Same as: COMM 842.

FOLK 843. Seminar in Contemporary Performance Theory. 3 Credits.
An advanced graduate seminar, this course will address recent developments and problems in performance theory. It will consider cross- and multidisciplinary approaches to performance as sites for consideration and debate.
Grading status: Letter grade
Same as: COMM 843.

FOLK 850. Approaches to Folklore Theory. 3 Credits.
A systematic overview of the major issues and theoretical perspectives that have informed the study of folklore historically and that are emerging in contemporary scholarship.
Grading status: Letter grade.

FOLK 860. Art of Ethnography. 3 Credits.
A field-based exploration of the pragmatic, ethical, and theoretical dimensions of ethnographic research, addressing issues of experience, aesthetics, authority, and worldview through the lens of cultural encounter. Field research required.
Grading status: Letter grade
Same as: ANTH 860.

FOLK 890. Seminar in Folklore. 3 Credits.
Graduate seminar exploring selected topics in the theory and practice of Folklore.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

FOLK 891. Topics in Folklore. 3 Credits.
An irregularly offered graduate seminar exploring selected topics in the theory and practice of folklore.
Grading status: Letter grade.

FOLK 895. Directed Readings. 3 Credits.
Permission of the instructor. Independent reading programs for graduate students.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

FOLK 900. Directed Studies. 0.5-15 Credits.
Permission of the instructor. Topics and credit hours vary according to the needs and interests of the individual student and the professor supervising the research project.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

FOLK 993. Master's Research and Thesis. 3 Credits.
Research in a special field under the direction of staff members.
Repeat rules: May be repeated for credit.

DEPARTMENT OF ANTHROPOLOGY (GRAD)

Contact Information

Department of Anthropology
Visit Program Website (http://anthropology.unc.edu)

Patricia McAnany, Chair

The Department of Anthropology offers advanced work leading to the master of arts and doctor of philosophy degrees. Students admitted into the graduate program are admitted for the Ph.D. degree. A master's degree may be taken as part of the program leading to the Ph.D. degree; however, a master's degree is not an essential part of the doctoral program.

The Department of Anthropology works closely with the Institute for Research in Social Science, the Institute for the Study of the Americas, the Carolina Population Center, and the Research Laboratories of Archaeology.

Up-to-date lists of anthropology faculty members and courses, along with additional information about the graduate program, faculty research projects, and other information, are available on the department's Web site (http://anthropology.unc.edu).

In order to organize constellations of research interest, the department curriculum is organized by programs and concentrations. Programs are offered in archaeology, human biology, ecology, and evolution, and sociocultural anthropology and ethnography. Concentrations include health, medicine, and humanity; global engagement; race, difference, and power; heritage and unwritten histories; and social formations and processes. Students are expected to take at least three courses from within their chosen area of concentration or from a set of courses designated by their program.

Programs are distinguished from concentrations by their institutional links to other faculty and administrative units on campus, and by their greater specificity for certain course requirements. Students interested in one or the other program are advised to so declare when they enter the department if they have not yet done so. Graduate students may take courses offered by other departments or institutions such as Duke University. Departmental policy is to help the student select courses that supplement and strengthen the specialization in anthropology.

Incoming students are required to take ANTH 701, 703, and 705 during their first year. In addition, they will take whatever courses are required by their subfield:
1. Sociocultural students must complete 702 by the end of their second year. It is only offered biennially, so students are required to take it at the first opportunity. In addition, students are highly encouraged to take 898 (Engaging Ethnography).
2. HBEE students must choose additional courses in consultation with their advisor.
3. Archaeology students must choose additional courses in consultation with their advisor.
4. Medical anthropology students must choose additional courses in consultation with their advisor.

Any exceptions to these requirements must be approved by the director of graduate studies.

During the second year of study, graduate students are required to produce a substantial piece of independent research, advised by a three-member faculty committee and presented to the entire faculty at the end of the fourth semester. Graduate students are advised to take their written and oral Ph.D. exams by the end of the sixth semester.

The Ph.D. degree requires specialization in a defined area of study and the completion of an acceptable dissertation treating some problem within this area. The Ph.D. program is quite flexible; any area or problem can be selected for study, provided it meets the approval of the student's advisor, the Ph.D. committee, and the faculty. Part of the training of a professional anthropologist is based on a minimum of one year's field work, which provides the context for the dissertation data in sociocultural anthropology or human ecology. For students concentrating in archaeology or biological anthropology, the Research Laboratories of Archaeology offer opportunities for student-led investigations as well as analysis of existing collections of archaeological material.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Florence Babb (79), Cultural/Economic/Feminist Anthropology, Gender and Sexuality, Critical Development Studies, Urbanization in the Global South, Tourism Studies, Latin American Studies, Central America, Central Andes, Caribbean
Rudolf Colloredo-Mansfeld (76), Indigenous Peoples, Artisan Economies, Competition, Commodities, Consumer Cultures, Producer Associations, Local Food Systems
Dale L. Hutchinson (63), Bioarchaeology, Human Osteology, Forensic Anthropology, Paleopathology, Health and Nutrition, Agricultural Origins and Consequences, Southeastern and Mid-Atlantic United States, South America
Paul W. Leslie (37), Human Ecology, Biological Anthropology, Demography, Population Genetics, Reproduction, East Africa
Patricia McAnany (75), Cultural Heritage and Indigenous Communities, Ancestor Veneration, Archaeological Understanding of Detachment from Place, Cultural Logic of Noncapitalist Economies, Identity and Gender Constructs, Cacao Production and Use, Social Reproduction of Technology, Maya Studies, Archaeology of Mesoamerica
Donald Nonini (34), Urban Anthropology, Political Anthropology, Anthropology of the State, Class/Race/Ethnic/Gender Inequalities, Global Systems and Transnationalism, the Urban Commons, Chinese in Southeast Asia, China, the Southern United States
Peter Redfield (54), Anthropology of Science and Technology, Medicine, Colonial History, Ethics, Humanitarianism and Human Rights, NGOs and Transnational Experts, Europe, French Guiana, Uganda
C. Margaret Scarry (48), Archaeology, Paleoethnobotany, Subsistence Economies, Foodways, North America, Greek Aegean, Complex Societies
Vincas P. Steponaitis (2), Archaeology, Political Economy, Chiefdoms, Quantitative Methods, Southeastern United States
Silvia Tomášková (59), Archaeological Method and Theory; History of Archaeology; Social and Gender Archaeology; Archaeology and Nationalism, the State, Politics; Gender and Science; Women in Scientific Professions and Society; Old World Prehistory; Paleolithic Archaeology; Central and Eastern European Archaeology; Prehistoric Imagery; Theories of Symbolic Representation; Stone Tool Analysis

Associate Professors

Benjamin Arbuckle, Near Eastern Archaeology, Turkey, Origins and Evolution of Animal Economies, Animals in Complex Societies
Anna Agbe-Davies (79), Historical Archaeology, Plantation Societies of the Colonial Southeastern United States and Caribbean, Towns and Cities of the 19th- and 20th-Century Midwest, African Diaspora
Brian Billman (42), Archaeology of Chiefdoms and States, Political Economy, Human Violence, the Evolution of Human Behavior, Heritage Preservation, Settlement Pattern Analysis, the Prehistory of the Andes and the American Southwest
Jocelyn Lim Chua (82), Anthropologies and Politics of Health and Well-Being, Globalization of Psychiatry, Mental Health and Illness, Politics of Life and Death, Suicide, Ontologies of the Body, Kinship and Care, South Asia, Kerala
Glenn D. Hinson (36), Ethnography, Belief Studies, Folklife, Public Folklore, Trauma-Informed Ethnographic Practice, Experience-Centered Anthropology, African American Expressive Culture, Vernacular Poetry, Vernacular Art, African Diaspora, the North American South
Valerie Lambert (58), American Indians, Tribal Sovereignty, Tribal Nation Building and Tribal Governance, Federal-Tribal Relations and Tribal-State Relations, Bureaucracy and the United States Bureau of Indian Affairs
C. Townsend Middleton (83), Politics of Recognition, Belonging, and Autonomy; Affect and Anxiety; the State; Anthropology of Knowledge; Political Anthropology; India; South Asia
Christopher Nelson (64), History and Memory, Everyday Life, Ethnography, Critical Theory, Storytelling, Ritual and Performance, Japan and Okinawa
Charles Price (62), Identity Formation, Social Movements, Community Organizations and Organizing, Ethnographically Grounded Oral Life History, Action Research and Collaborative Research Projects
Michele Rivkin-Fish (73), Medical Anthropology, Moral Economies of Medicine and Health, Gender and Health, Reproductive Politics, Health Care Reform, Russia, United States
Karla Slocum (56), Place, Race, and History; Globalization; Rurality; Social Movements; the Caribbean; the United States Southwest
Mark Sorensen (67), Biological Anthropology, Health and Culture Change, Adaptability, Energetics, Nutrition, Russia, Siberia, Ecuador
Amanda Thompson (78), Biomedical Anthropology, Nutrition, Human Biology, Early Life Determinants of Body Composition and Obesity, Infant and Child Feeding
Colin West (81), Human Ecology and the Human Dimensions of Global Change, West Africa, Arctic North America/Asia, Southwestern United States
Margaret Wiener (47), Actor Network Theory, Ontology, Science Studies; History and Memory; Magic; Human and Animal Relations; Colonial Societies; Southeast Asia; Indonesia; Bali

Assistant Professors

Angela Stuesse (84), Neoliberalism; Race, Ethnicity, and Identity; Globalization; Migration; Social Movements; Human Rights; Labor; Methodologies of Activist Research; the United States South and Southwest; Latino and Latin America; Equatorial Guinea

Adjunct Professors

R.P. Stephen Davis Jr. (40), Archaeology, Quantitative Methods, Computer Applications, Ceramic Analysis, Settlement Systems, Contact Period, Southeastern United States

Adjunct Associate Professors

Lorraine Aragon (71), Anthropology of Religion, Intellectual Property Law, and Arts Production; (Post)Colonialism, Ethnic Minorities, and State Relations; Global Connections and Heritage Nationalism; Migration and Conflict; Language and Media; Subsistence and Sustainability; Health; Gendered Experiences; Southeast Asia; Indonesia
Michael C. Lambert (51), Political Anthropology, Economic Anthropology, Africa
Patricia Sawin (44), Ethnography of Communication, Narrative, Performance and Poetics, Gender, Anthropology of Children and Adoption, Southern United States, Latin America

Adjunct Assistant Professors

Karaleah Reichart, Gender, Ethnicity, and Class; Coalition Building and Dispute Resolution; Organizational Anthropology; Political Economy and Economic Anthropology; Environmental Activism and Community Organizing; Negotiation and Conflict Management; Applied Anthropology; United States
Sandy Smith-Nonini (74), Global Studies, Sustainability, Cooperation, Systems/Complexity Theory, Social Movements, Politics of Health, Farm Labor, Latin American Studies, El Salvador
Laurie C. Steponaitis (39), Archaeology, Hunter-Gatherers, Regional Survey, Settlement Patterns, Coastal Adaptations, Shellfish Analysis, Eastern North America

Research Associate Professors

John F. Scarry (49), Archaeology, North America, Chiefdoms, Colonial Encounters, Identity Constructions, Public Archaeology

Professors Emeriti

Carole L. Crumley (22), Epistemology of Complex Adaptive Systems; "Two Cultures" (science/humanities) Problems in Inter- and Transdisciplinary Research; Integrated Global- to Local-Scale Historical Ecology; Historical Climate Change; Evolution of Landscapes; Social Inequality; Social Memory; Applications of Geomatics (especially GIS/Remote Sensing) to Anthropology, Ecology, and Regional Planning
Robert E. Daniels (4), Social Anthropology, Psychological Anthropology, Systems Theory, Africa
Arturo Escobar (53), Political Ecology; Anthropology of Development, Social Movements, and Science and Technology; Latin America; Colombia
Terence M.S. Evens (5), Social Anthropology, Social Theory, Phenomenology, Ethics, Philosophical Anthropology, Collectivist Settlements
Kaja Finkler (32), Medical Anthropology, Gender and Health, the New Genetics, Kinship and Family, Economic Anthropology, Political Economy, Globalization, Mexico, Latin America
Dorothy C. Holland (16), Identity and Agency, Activism, Social Movements, Alternative Agriculture Movement, Environmental Studies, Schooling and Work, Race, Class and Gender, United States
Norris B. Johnson (25), Architecture, Art and Aesthetics, Photography and Visual Anthropology, Religion and Nature, Japan
James L. Peacock (11), Global Issues and Identities, Southeast Asia, Southeastern United States

ANTH

Advanced Undergraduate and Graduate-level Courses

ANTH 400. Introduction to General Linguistics. 3 Credits.
An introduction to the scientific study of language. The nature of language structure. How languages are alike and how they differ.
Grading status: Letter grade
Same as: LING 400.

ANTH 405. Mental Health, Psychiatry, and Culture. 3 Credits.
This course explores mental illness as subjective experience, social process, key cultural symbol, and object of intervention and expert knowledge. Our questions include: Does mental illness vary across cultural and social settings? How do psychiatric ways of categorizing, diagnosing, and treating mental illness shape people's subjective experience of their affliction? How is psychiatry predicated on cultural ideas about self and society? What does this contingency mean for the movement for global mental health?
Gen Ed: SS, GL.
Grading status: Letter grade.

ANTH 406. Native Writers. 3 Credits.
Exploration of a broad selection of writings by native or indigenous scholars from tribal societies throughout the world. Seeks to understand the hopes, dreams, priorities, and perspectives of native peoples as expressed by and through their writers.
Gen Ed: SS, NA.
Grading status: Letter grade.

ANTH 410. The Identification and Analysis of Historical Artifacts. 3 Credits.
This is a hands-on lab class on the identification and analysis of ceramics, tobacco pipes, glassware, small finds, and personal objects produced or traded in Northern Europe and Eastern North America. Students will be instructed on how to identify, date, and analyze artifacts from the 17th century through the middle of the 20th century. In addition, topics such as function, technology, and socioeconomic status will be discussed.
Gen Ed: NA.
Grading status: Letter grade.

ANTH 411. Laboratory Methods in Archaeology. 3 Credits.
An examination of the laboratory techniques used by archaeologists to analyze artifacts and organic remains, including the analysis of stone tools, pottery, botanical remains, and bone. Honors version available
Gen Ed: SS, QI, WB.
Grading status: Letter grade.

ANTH 411H. Laboratory Methods in Archaeology. 3 Credits.
An examination of the laboratory techniques used by archaeologists to analyze artifacts and organic remains, including the analysis of stone tools, pottery, botanical remains, and bone.
Gen Ed: SS, QI, WB.
Grading status: Letter grade.

ANTH 412. Paleoanthropology. 3 Credits.
This course traces the evolution of humans and nonhuman primates--including behaviors, tools, and bodies of monkeys, apes, and human hunters and gatherers--evolutionary theory, and paleoanthropological methods.
Gen Ed: PL.
Grading status: Letter grade.

ANTH 413. Laboratory Methods: Archaeobotany. 3 Credits.
This course will focus on the analysis of plant remains from archaeological sites. Introduction to laboratory methods, analytical approaches, and interpretive framework for archaeobotany. Prior course in archaeology recommended but not required.
Requisites: Corequisite, ANTH 413L.
Gen Ed: PX, CI, EE- Mentored Research.
Grading status: Letter grade.

ANTH 413L. Archaeobotany Lab. 1 Credit.
Lab analysis of plant remains from archaeological sites with an emphasis on basic procedures for processing, sorting, and identifying macrobotanical remains.
Requisites: Corequisite, ANTH 413.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ANTH 414. Laboratory Methods: Human Osteology. 3 Credits.
This course will focus on the analysis of human skeletal materials in the laboratory and in the field, with an emphasis on basic identification, age and sex estimation, and quantitative analysis.
Gen Ed: PL.
Grading status: Letter grade.

ANTH 414L. Human Osteology Lab. 1 Credit.
The laboratory analysis of human skeletal materials with an emphasis on basic identification, age and sex estimation, and quantitative analysis.
Requisites: Corequisite, ANTH 414.
Grading status: Letter grade.

ANTH 415. Laboratory Methods: Zooarchaeology. 3 Credits.
This course will focus on the analysis of animal remains from archaeological sites. Introduction to laboratory methods, analytical approaches, and interpretive frameworks for zooarchaeology.
Gen Ed: SS.
Grading status: Letter grade.

ANTH 415L. Zooarchaeology Lab. 1 Credit.
Required preparation, an archaeological course or permission of instructor. Examination of identification techniques, quantitative methods, and interpretive frameworks used to analyze animal remains recovered from archaeological sites.
Requisites: Corequisite, ANTH 415.
Grading status: Letter grade.

ANTH 416. Bioarchaeology. 3 Credits.
The study of human skeletal remains from archaeological contexts. The collection and interpretation of quantitative and qualitative data is emphasized to assess the relationship between past biology, environment, culture, and behavior.
Gen Ed: SS.
Grading status: Letter grade.

ANTH 417. Laboratory Methods: Lithic Seminar. 3 Credits.
Laboratory techniques in stone tool research and experimental practice.
Gen Ed: SS.
Grading status: Letter grade.

ANTH 417L. Lithic Analysis Lab. 1 Credit.
Required preparation, any course in archaeology or permission of the instructor. This is a required one-hour laboratory section to be taken in conjunction with ANTH 417.
Requisites: Corequisite, ANTH 417.
Grading status: Letter grade.

ANTH 418. Laboratory Methods: Ceramic Analysis. 3 Credits.
A survey of the laboratory techniques used by archaeologists to study and draw social and behavioral inferences from ancient pottery.
Grading status: Letter grade.

ANTH 419. Anthropological Application of GIS. 3 Credits.
Permission of the instructor. GIS experience required. This course explores applying GIS science technologies to anthropological problems. Students will learn GIS skills and apply them using spatial data.
Grading status: Letter grade.

ANTH 420. Public Archaeology. 3 Credits.
The aim of the course is to build an understanding of archaeology as a discipline that involves and affects the public. Among the areas to be covered are the implementation of federal, state, and other statutes, and the presentation of archaeological knowledge through museums and public media.
Grading status: Letter grade.

ANTH 421. Archaeological Geology. 3 Credits.
Permission of the instructor. The application of geological principles and techniques to the solution of archaeological problems. Studies geological processes and deposits pertinent to archaeological sites, geologic framework of archaeology in the southeastern United States, and techniques of archaeological geology. Field trips to three or more sites; written reports required.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: GEOL 421.

ANTH 422. Anthropology and Human Rights. 3 Credits.
An examination human rights issues from an anthropological perspective, addressing the historical formation of rights, their cross-cultural context and the emergence of humanitarian and human rights organizations on a global scale.
Gen Ed: SS, GL.
Grading status: Letter grade.

ANTH 423. Written in Bone: CSI and the Science of Death Investigation from Skeletal Remains. 3 Credits.
This course combines laboratory training, field projects, lectures, films, discussion, and student presentations into a course on the science of human skeletal analysis. Students learn the laboratory methods scientists use to study human remains and the role of skeletal analysis in the study of contemporary forensic cases.
Gen Ed: PL.
Grading status: Letter grade.

ANTH 424. Ritual, Festival, and Public Culture. 3 Credits.
This course explores rituals, festivals, and public cultural performances as forms of complex, collective, embodied creative expression. As sites of popular celebration, conflict resolution, identity definition, and social exchange, they provide rich texts for folkloristic study. We consider how local and global forces both sustain and challenge these forms.
Gen Ed: SS, EE- Field Work.
Grading status: Letter grade
Same as: FOLK 424.

ANTH 425. Public Archaeology Practicum. 3 Credits.
An opportunity for archaeology students to apply their field and/or lab skills to a semester long, team-based research project developed to address the needs of a community partner.
Requisites: Prerequisite, ANTH 410, 411, 420, 451 or CLAR 411; permission of the instructor for students lacking the prerequisite.
Gen Ed: EE- Service Learning.
Grading status: Letter grade.

ANTH 426. Making Magic. 3 Credits.
Magic in anthropology and popular culture, from the 19th century to the present. Focuses on witchcraft and healing; arts of illusion; fantasy and (multiple) realities. Examines how realities are made and unmade through speech, rites, relations of power.
Gen Ed: HS.
Grading status: Letter grade.

ANTH 427. Race. 3 Credits.
This course explores the history, politics, and social dimensions of race as a category. It examines the lived experience of race, racialization and racism, as well as the role of anthropology in contemporary and historic definitions of race.
Gen Ed: SS, GL.
Grading status: Letter grade.

ANTH 428. Religion and Anthropology. 3 Credits.
Religion studied anthropologically as a cultural, social, and psychological phenomenon in the works of classical and contemporary social thought. Honors version available
Gen Ed: SS.
Grading status: Letter grade
Same as: FOLK 428, RELI 428.

ANTH 428H. Religion and Anthropology. 3 Credits.
Religion studied anthropologically as a cultural, social, and psychological phenomenon, in the works of classical and contemporary social thought.
Gen Ed: SS.
Grading status: Letter grade
Same as: FOLK 428H, RELI 428H.

ANTH 429. Culture and Power in Southeast Asia. 3 Credits.
The formation and transformation of values, identities, and expressive forms in Southeast Asia in response to forms of power. Emphasis on the impact of colonialism, the nation-state, and globalization.
Gen Ed: SS, BN, GL.
Grading status: Letter grade
Same as: ASIA 429, FOLK 429.

ANTH 435. Consciousness and Symbols. 3 Credits.
This course explores consciousness through symbols. Symbols from religion, art, politics, and self are studied in social, psychological, historical, and ecological context to ascertain meanings in experience and behavior.
Gen Ed: SS.
Grading status: Letter grade
Same as: CMPL 435, FOLK 435.

ANTH 437. Evolutionary Medicine. 3 Credits.
This course explores evolutionary dimensions of variation in health and disease in human populations. Topics include biocultural and evolutionary models for the emergence of infectious and chronic diseases and cancers.
Gen Ed: PL.
Grading status: Letter grade.

ANTH 438. Religion, Nature, and Environment. 3 Credits.
A seminar on concepts of nature within religions and a variety of world-wide spiritual traditions. Emphasis on sacred space, place, and pilgrimage as a vital intersection of religion and nature. Honors version available
Grading status: Letter grade.

ANTH 438H. Religion, Nature, and Environment. 3 Credits.
A seminar on concepts of nature within religions and a variety of world-wide spiritual traditions. Emphasis on sacred space, place, and pilgrimage as a vital intersection of religion and nature.
Grading status: Letter grade.

ANTH 439. Political Ecology. 3 Credits.
Examines environmental degradation, hunger, and poverty through the lens of power relationships, particularly inequality, political and economic disenfranchisement, and discrimination. Discussion of global case studies, with a Latin American focus.
Gen Ed: SS, CI, GL.
Grading status: Letter grade.

ANTH 441. The Anthropology of Gender, Health, and Illness. 3 Credits.
The course explores cultural beliefs, practices, and social conditions that influence health and sickness of women and men from a cross-cultural perspective.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: WGST 441.

ANTH 442. Health and Gender after Socialism. 3 Credits.
This course examines postsocialist experiences of the relationship between political, economic, social, and cultural transitions, and challenges in public health and gender relations.
Grading status: Letter grade
Same as: WGST 440.

ANTH 443. Cultures and Politics of Reproduction. 3 Credits.
This course takes a cross-cultural approach to understanding how reproduction and associated phenomena become arenas where political debates are played out, and where global and local social relations are contested.
Grading status: Letter grade
Same as: WGST 443.

ANTH 444. Medicine, Politics, and Justice. 3 Credits.
This course brings an anthropological approach to understanding the intersections between medicine, politics, and public health.
Grading status: Letter grade.

ANTH 445. Migration and Health. 3 Credits.
This course examines the intersections between migration processes and the political, economic, and social dimensions of health and well-being among migrants, their families, and their communities.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: WGST 445.

ANTH 446. Poverty, Inequality, and Health. 3 Credits.
This course examines poverty, inequalities, and health from a global and historical perspective. We will study the role of sociopolitical context, individual behavior, and human biology, and will pay particular attention to the roles of psychosocial stress, material conditions, and policy in shaping health differences within and between populations.
Gen Ed: SS, GL.
Grading status: Letter grade.

ANTH 447. The Anthropology of Work. 3 Credits.
Anthropological investigations of work and the relationship between work, family life, and community in contemporary societies in the United States, Asia, and Latin America, within the framework of globalization. Honors version available
Gen Ed: SS, CI, GL.
Grading status: Letter grade.

ANTH 447H. The Anthropology of Work. 3 Credits.
Anthropological investigations of work and the relationship between work, family life, and community in contemporary societies in the United States, Asia, and Latin America, within the framework of globalization.
Gen Ed: SS, CI, GL.
Grading status: Letter grade.

ANTH 448. Health and Medicine in the American South. 3 Credits.
This course examines ways we can understand the history and culture of a region through the experience of health and healthcare among its people. With an anthropological approach, this course considers the individual, social, and political dimensions of medicalized bodies in the American South from the 18th century through the current day.
Gen Ed: HS, US.
Grading status: Letter grade.

ANTH 449. Anthropology and Marxism. 3 Credits.
Critical study of Marx' mature social theory and its relationship to contemporary anthropology.
Gen Ed: HS.
Grading status: Letter grade.

ANTH 451. Field School in North American Archaeology. 6 Credits.
Intensive training in archaeological field methods and techniques. Students participate in the excavation, recovery, recording, and interpretation of archaeological remains. Instruction given in survey, mapping, photography, flotation recovery, etc. Honors version available
Gen Ed: HS, EE- Field Work, WB.
Grading status: Letter grade.

ANTH 451H. Field School in North American Archaeology. 6 Credits.
Intensive training in archaeological field methods and techniques. Students participate in the excavation, recovery, recording, and interpretation of archaeological remains. Instruction given in survey, mapping, photography, flotation recovery, etc.
Gen Ed: HS, EE- Field Work, WB.
Grading status: Letter grade.

ANTH 452. The Past in the Present. 3 Credits.
Memory and history, history and politics, national narratives, the past in the present, and the present in the past; a cross-cultural examination of ways of connecting the present and the past.
Gen Ed: HS, WB.
Grading status: Letter grade.

ANTH 453. Field School in South American Archaeology. 6 Credits.
Intensive study of archaeological field and laboratory methods and prehistory of the Andes through excavation and analysis of materials from archaeological sites in Peru. Includes tours of major archaeological sites. Honors version available
Gen Ed: HS, EE- Study Abroad, EE- Field Work, WB.
Grading status: Letter grade.

ANTH 453H. Field School in South American Archaeology. 6 Credits.
Intensive study of archaeological field and laboratory methods and prehistory of the Andes through excavation and analysis of materials from archaeological sites in Peru. Includes tours of major archaeological sites.
Gen Ed: HS, EE- Study Abroad, EE- Field Work, WB.
Grading status: Letter grade.

ANTH 454. The Archaeology of African Diasporas. 3 Credits.
How is archaeological evidence used to understand the movement of Africans and their descendants across the globe? This course focuses on what archaeologists have learned about the transformation of societies on the African continent and in the Americas from the era of the trans-Atlantic slave trade to the present.
Gen Ed: HS, GL.
Grading status: Letter grade.

ANTH 455. Ethnohistory. 3 Credits.
Integration of data from ethnographic and archaeological research with pertinent historic information. Familiarization with a wide range of sources for ethnohistoric data and practice in obtaining and evaluating information. Pertinent theoretical concepts will be explored.
Gen Ed: HS.
Grading status: Letter grade
Same as: FOLK 455.

ANTH 456. Archaeology and Ethnography of Small-Scale Societies. 3 Credits.
The study of small-scale hunter-gatherer and farming societies from archaeological and ethnographic perspectives. Methods and theories for investigating economic, ecological, and social relations in such societies are explored.
Gen Ed: HS.
Grading status: Letter grade.

ANTH 457. Perspectives in Historical Archaeology. 3 Credits.
This class will examine the development of historical archaeology as a distinct subdiscipline as well as investigating how the field is being practiced currently around the world.
Gen Ed: HS, WB.
Grading status: Letter grade.

ANTH 458. Archaeology of Sex and Gender. 3 Credits.
Required preparation, at least one ANTH or one WMST course. A discussion of gender and sex roles and sexuality in past cultures; a cross-cultural examination of ways of knowing about past human behavior.
Gen Ed: SS, WB.
Grading status: Letter grade
Same as: WGST 458.

ANTH 459. Ecological Anthropology. 3 Credits.
Examines how human-environmental adaptations shape the economic, social, and cultural lives of hunter-gatherers, pastoralists and agriculturalists. Approaches include optimal foraging theory, political ecology and subsistence risk.
Gen Ed: SS.
Grading status: Letter grade
Same as: ENEC 459.

ANTH 460. Historical Ecology. 3 Credits.
Historical ecology is a framework for integrating physical, biological, and social science data with insights from the humanities to understand the reciprocal relationship between human activity and the Earth system.
Gen Ed: HS, GL.
Grading status: Letter grade
Same as: ENEC 460.

ANTH 461. Colonialism and Postcolonialism: History and Anthropology. 3 Credits.
This course examines colonialism and postcolonialism through the lenses of history and anthropology respectively. Through history, it asks, What were the dynamics of colonialism then? Through anthropology, it questions, What are the conditions, quandaries, and possibilities of postcolonialism now? Regional focus varies by instructor and year.
Gen Ed: HS, BN.
Grading status: Letter grade.

ANTH 463. Settler Colonialism. 3 Credits.
This class will be framed around readings that explore the varied impact of European settlement across the globe. In focusing on both the varied global legacies of colonialism and the continued sociopolitical movements of indigenous populations, this class will encourage a broad perspective on what settler colonialism looks like today.
Gen Ed: CI, GL.
Grading status: Letter grade.

ANTH 467. Culture, Wealth, and Poverty. 3 Credits.
Examines three broad perspectives used to explain inequality: ecological, cultural, and political. Students read theoretical works and evaluate arguments using ethnographies that describe local economies, institutions, and adaptive practices.
Grading status: Letter grade.

ANTH 468. State Formation. 3 Credits.
The course examines the state, from its initial appearance 5,000 years ago to newly established nation-states, exploring the concepts of ethnicity, class, race, and history in state formation and maintenance.
Gen Ed: HS.
Grading status: Letter grade.

ANTH 469. History and Anthropology. 3 Credits.
Studies links between history and anthropology; cultures in historical perspective and history in cultural perspective; and effects of relations of power and historical interconnections on the peoples of the world.
Gen Ed: SS.
Grading status: Letter grade.

ANTH 470. Medicine and Anthropology. 3 Credits.
This course examines cultural understandings of health, illness, and medical systems from an anthropological perspective with a special focus on Western medicine.
Gen Ed: SS.
Grading status: Letter grade
Same as: FOLK 470.

ANTH 471. Biocultural Perspectives on Maternal and Child Health. 3 Credits.
This course explores maternal and child health from an evolutionary, biocultural, and global health perspective. It focuses on the physiological, ecological, and cultural factors shaping health and takes a life course perspective to examine childhood development, reproductive processes such as pregnancy, birth and lactation, and menopause and aging.
Gen Ed: PL.
Grading status: Letter grade.

ANTH 473. Anthropology of the Body and the Subject. 3 Credits.
Anthropological and historical studies of cultural constructions of bodily experience and subjectivity are reviewed, with emphasis on the genesis of the modern individual and cultural approaches to gender and sexuality.
Gen Ed: SS.
Grading status: Letter grade
Same as: FOLK 473.

ANTH 474. The Anthropology of Disability. 3 Credits.
Investigates the social, cultural, and historical variation in the conception of disability, in its practical meaning and performance, and in its social and medical management. Special attention is paid to the interplay of embodiment, identity, and agency in work and everyday life and in political action and advocacy.
Gen Ed: SS.
Grading status: Letter grade.

ANTH 477. Visual Anthropology. 3 Credits.
This course introduces students to visual forms of communication through both the analysis and production of still and video materials. Ethics, cross-cultural representations, and ethnographic theory will all be explored.
Gen Ed: VP, EE- Mentored Research.
Grading status: Letter grade.

ANTH 484. Discourse and Dialogue in Ethnographic Research. 3 Credits.
Study of cultural variation in styles of speaking applied to collection of ethnographic data. Talk as responsive social action and its role in the constitution of ethnic and gender identities.
Gen Ed: SS, CI, US.
Grading status: Letter grade
Same as: FOLK 484, LING 484.

ANTH 490. Undergraduate Seminar in Anthropology. 3 Credits.
The subject matter will vary with the instructor. Each course will concern itself with a study in contemporary anthropology and new directions in research or applications. Restricted to junior and senior anthropology majors; generally the course is limited to 18 students.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ANTH 502. Globalization and Transnationalism. 3 Credits.
Anthropological examination of processes of globalization and transnationalism, with special attention to transnational migration, emergence of transnational ('global') institutions, commodity flows, and dissemination of ideologies, cultural frameworks, and media imagery.
Gen Ed: SS, GL.
Grading status: Letter grade.

ANTH 503. Gender, Culture, and Development. 3 Credits.
Classic writings and debates relating to gender and development, with emphasis on recent work that critiques conventional development models. The scope is global, with special attention to Latin America and to such questions as how alternative approaches to gender, culture, and development may be more inclusive of diverse peoples and grassroots movements for change.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: WGST 503.

ANTH 520. Linguistic Phonetics. 3 Credits.
Introduction to the general principles of linguistic phonetics; anatomy of vocal tract, physiology of speech production, universal phonetic theory. Practice in the recognition and transcription of speech sounds.
Grading status: Letter grade
Same as: LING 520.

ANTH 523. Phonological Theory I. 3 Credits.
Permission of the instructor for undergraduates. Introduction to the principles of modern generative phonology. Methods and theory of phonological analysis. Students may not receive credit for both LING 200 and LING 523.
Requisites: Prerequisite, LING 520, or SPHS 530 or 540.
Grading status: Letter grade
Same as: LING 523.

ANTH 525. Culture and Personality. 3 Credits.
Systems theory used to conceptualize relationship between cultural patterns and individual minds. Functional, dysfunctional, and therapeutic processes considered. Examples from Africa, Asia, Europe, and Native America. Lectures, films, recitations.
Gen Ed: SS.
Grading status: Letter grade
Same as: FOLK 525.

ANTH 535. The Archaeology of Health and Well-Being. 3 Credits.
In this course, we will engage the juxtaposition between traditional cures and the institutionalized ones of the 21st century through analyzing earlier material manifestations of health care and well-being. We will trace the growth of medical care in America from the early colonial years, and consider how they resulted in wholly American circumstances and applications.
Gen Ed: SS.
Grading status: Letter grade.

ANTH 537. Gender and Performance: Constituting Identity. 3 Credits.
Examines the culturally and historically variable ways in which individuals constitute themselves as cis- or transgendered subjects, drawing upon extant expressive resources, modifying them, and expanding options available to others. Performance of self as the product of esthetically marked or unmarked, everyday actions.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: FOLK 537, WGST 438.

ANTH 538. Disease and Discrimination in Colonial Atlantic America. 3 Credits.
Colonization of Atlantic America between 1500 and 1900, through landscape change, agriculture, poverty, labor discrimination, and slavery differentially placed subsets of the general population at risk for infectious disease and other insults to their health. Lecture and discussion using archaeological and bioarchaeological studies, modern disease studies, and historic documents.
Gen Ed: HS, US.
Grading status: Letter grade.

ANTH 539. Environmental Justice. 3 Credits.
Course examining issues of race, poverty, and equity in the environmental movement. Cases include the siting of toxic incinerators in predominantly people-of-color communities to resource exploitation on indigenous lands.
Gen Ed: SS, EE- Service Learning, US.
Grading status: Letter grade.

ANTH 540. Planetary Crises and Ecological and Cultural Transitions. 3 Credits.
Analysis of the social-environmental crisis and approaches to redress it, particularly those that posit ecological and cultural transitions beyond current globalization models. Participants will construct their own scenarios for transitions to sustainable and pluralistic societies. The course will have an in-built, collective research component. Intended for upper-division undergraduates.
Gen Ed: GL.
Grading status: Letter grade.

ANTH 541. Sociolinguistics. 3 Credits.
Introduction to the study of language in relation to society; variation as it correlates with socioeconomic status, region, gender; the social motivation of change; language and equality; language maintenance, planning, shift.
Requisites: Prerequisite, LING 101 or 400.
Grading status: Letter grade
Same as: LING 541.

ANTH 542. Pidgins and Creoles. 3 Credits.
Examination of the social contexts of language contact and their linguistic outcomes, with particular emphasis on the formation of pidgins and creoles. The course investigates the structural properties of these new contact languages and evaluates the conflicting theories that explain their genesis.
Requisites: Prerequisite, LING 101 or 400.
Grading status: Letter grade
Same as: LING 542.

ANTH 545. The Politics of Culture in East Asia. 3 Credits.
Examines struggles to define culture and the nation in 20th-century China in domains like popular culture, museums, traditional medicine, fiction, film, ethnic group politics, and biography and autobiography.
Gen Ed: SS, BN, GL.
Grading status: Letter grade
Same as: ASIA 545.

ANTH 550. Archaeology of the American South. 3 Credits.
Current issues and interpretations in the archaeology of the American South. Through weekly readings and discussions, students will explore the lifeways and changes that characterized each major period of the South's ancient history, from 12,000 years ago to the beginnings of European colonization.
Gen Ed: HS, WB.
Grading status: Letter grade.

ANTH 551. Origins of Agriculture in the Ancient World. 3 Credits.
This course explores archaeological evidence for the origins of food production. We address when and where this profound change occurred as well as focusing on why it happened and what its consequences were. We will examine current evidence for the origins of agriculture in both Old and New Worlds.
Gen Ed: GL, WB.
Grading status: Letter grade.

ANTH 559. History in Person. 3 Credits.
Extends anthropological approaches to identity in social life. Examines social position, power, and cultural imagination; the personal and collective dynamics of sociocultural change; and the concept of agency.
Gen Ed: SS.
Grading status: Letter grade.

ANTH 574. Chinese World Views. 3 Credits.
Explores the indigenous Chinese sciences and the cosmological ideas that informed them. Topics include astronomy, divination, medicine, fengshui, and political and literary theory. Chinese sources in translation are emphasized.
Gen Ed: SS, BN.
Grading status: Letter grade
Same as: ASIA 574, RELI 574.

ANTH 584H. Conspiracy Thinking in Contemporary United States. 3 Credits.
We will consider the JFK assassination, in detail and in historical context, and several subsequent real and imagined conspiracies, including 9/11. The course focuses on a fundamental issue in social analysis: the empirical and epistemological bases of what we know about our society, its current events and recent history.
Grading status: Letter grade.

ANTH 584. Conspiracy Thinking in Contemporary United States. 3 Credits.
We will consider the JFK assassination, in detail and in historical context, and several subsequent real and imagined conspiracies, including 9/11. The course focuses on a fundamental issue in social analysis: the empirical and epistemological bases of what we know about our society, its current events and recent history. Honors version available
Grading status: Letter grade.

ANTH 585. Anthropology of Science. 3 Credits.
Cultural perspectives on science and technology at a global scale, including research settings and social contexts, knowledge claims and material practice, and relations between scientific worldviews, social institutions, and popular imagination.
Gen Ed: SS, GL, NA.
Grading status: Letter grade.

ANTH 586. The Gardens, Shrines, and Temples of Japan. 3 Credits.
The religious landscape and built environments of Japan. Attention to palace, courtyard, and teahouse architecture and gardens, with emphasis on Shinto shrines and the Zen Buddhist temple and garden.
Gen Ed: VP, BN.
Grading status: Letter grade
Same as: ASIA 586.

ANTH 590. Special Topics in Anthropology I. 3 Credits.
Subject matter will vary with instructor but will focus on some particular topic or anthropological approach. Course description is available from the departmental office. Honors version available
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

ANTH 590H. Special Topics in Anthropology I. 3 Credits.
Subject matter will vary with instructor but will focus on some particular topic or anthropological approach. Course description is available from the departmental office.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

ANTH 623. Human Disease Ecology. 3 Credits.
This seminar considers cultural ecologies of disease by examining how social, cultural, and historical factors shape disease patterns. We examine how ecosystems are shaped by disease, how disease shapes ecosystems, and how cultural processes (e.g., population movements, transportation, economic shifts, landscape modifications, and built environments) contribute to emerging infectious disease.
Gen Ed: SS, GL.
Grading status: Letter grade.

ANTH 624. Anthropology and Public Health. 3 Credits.
This course compares disciplinary approaches of public health and anthropology. We begin by examining the social determinants of health paradigms and relationships between inequality, poverty, and global health. We will explore epidemiological, biocultural, and symbolic approaches to these problems. Public policy and health development will also be examined.
Gen Ed: SS, GL.
Grading status: Letter grade.

ANTH 625. Ethnography and Life Stories. 3 Credits.
The course focuses on the practical and research uses of ethnography and oral history, emphasizing life histories, life stories, biographies, and how these intersect with communities.
Gen Ed: SS, EE- Service Learning, EE- Field Work, US.
Grading status: Letter grade.

ANTH 626. African Cultural Dynamics. 3 Credits.
In-depth reading of several books and articles that consider the interaction between indigenous African traditions and intrusive colonial and postcolonial forces. Emphasis on class discussion. Short papers and individual projects.
Gen Ed: SS, BN, GL.
Grading status: Letter grade.

ANTH 629. Language Minority Students: Issues for Practitioners. 3 Credits.
Permission of the instructor. Explores issues of culture and language associated with teaching English as a second language.
Grading status: Letter grade
Same as: EDUC 629.

ANTH 649. Politics of Life and Death. 3 Credits.
The course examines intersections between life, death, and contemporary politics, with a historical focus on the health of populations. It combines theoretical discussions with comparative empirical cases in a global frame and includes a research component.
Gen Ed: SS, GL.
Grading status: Letter grade.

ANTH 650. Reconstructing Life: Nutrition and Disease in Past Populations. 3 Credits.
This is an advanced course in the reconstruction of nutrition and health in past populations. Among the topics explored are epidemiology, disease ecology, dietary reconstruction, and paleopathology.
Gen Ed: SS.
Grading status: Letter grade.

ANTH 651. Identity, Memory, and the Afterlife: The Space and Place of Death. 3 Credits.
Death is a universal event, yet treatment of the dead varies from society to society. This course will be directed at examining mortuary rituals, memory and identity, and the scientific study of the dead to interpret the space and place of death in archaeological contexts.
Grading status: Letter grade.

ANTH 660. Kinship, Reproduction, Reproductive Technology, and the New Genetics. 3 Credits.
This course focuses on the relationship between family, kinship, new reproductive technologies, and the new genetics from a cross-cultural perspective. Honors version available
Gen Ed: SS.
Grading status: Letter grade
Same as: WGST 660.

ANTH 660H. Kinship, Reproduction, Reproductive Technology, and the New Genetics. 3 Credits.
This course focuses on the relationship between family, kinship, new reproductive technologies, and the new genetics from a cross cultural perspective.
Gen Ed: SS.
Grading status: Letter grade
Same as: WGST 660H.

ANTH 674. Issues in Cultural Heritage. 3 Credits.
This course examines entanglements between the past and present from multiple and conflicting perspectives, highlighting an archaeological point of view. Models of participatory research are considered in relation to cultural heritage, and indigenous-rights perspectives are discussed in reference to archaeological, nation-state, and global interests.
Gen Ed: GL.
Grading status: Letter grade.

ANTH 675. Ethnographic Method. 3 Credits.
Intensive study and practice of the core research methods of cultural and social anthropology.
Gen Ed: SS, CI.
Grading status: Letter grade
Same as: FOLK 675.

ANTH 676. Research Methods in Human Biology. 3 Credits.
This course focuses on laboratory and field research methods in human biology. Through readings, in-class exercises, data collection outside of class, and laboratory analysis, students will examine issues of epistemology, ethics, data and biomarker collection methods, analysis and data processing. We will pay particular attention to issues of bias and validity, as well as precision and accuracy in human biology research.
Grading status: Letter grade.

ANTH 682. Contemporary Chinese Society. 3 Credits.
Presents recent anthropological research on the People's Republic of China. In addition to social sciences sources, fictional genres are used to explore the particular modernity of Chinese society and culture.
Gen Ed: SS, BN.
Grading status: Letter grade
Same as: ASIA 682.

ANTH 688. Observation and Interpretation of Religious Action. 3 Credits.
Permission of the instructor. Exercises (including field work) in learning to read the primary modes of public action in religious traditions, e.g., sermons, testimonies, rituals, and prayers.
Gen Ed: SS, EE- Mentored Research.
Grading status: Letter grade
Same as: FOLK 688, RELI 688.

ANTH 690. Special Topics in Anthropology II. 2-3 Credits.
Subject matter will vary with instructor but will focus on some particular topic or anthropological approach. Course description is available from the departmental office.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

ANTH 691H. Seniors Honors Project in Anthropology. 3 Credits.
Permission of the instructor. Open only to honors candidates.
Gen Ed: SS, EE- Mentored Research.
Grading status: Letter grade.

ANTH 692H. Senior Honors Thesis in Anthropology. 3 Credits.
Open only to senior honors candidates. Permission of the instructor is required.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

ANTH 700. Advanced Survey of Anthropology. 3 Credits.
Course description is available from the departmental office.
Grading status: Letter grade.

ANTH 701. Theory and Ethnography. 3 Credits.
Permission of the instructor. Development of a critical understanding of the anthropological study of society and culture through discussion of problems and issues expressed in classic theoretical and ethnographic literature.
Grading status: Letter grade.

ANTH 702. Sociocultural Theory and Ethnography. 3 Credits.
Prerequisite, ANTH 701; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

ANTH 703. Evolution and Ecology. 3 Credits.
Permission of the instructor. Development of a critical understanding of anthropological approaches to evolution and ecology in paleontological, archaeological, and present-day crosscultural contexts through the historical and comparative study of theory, method, and content.
Grading status: Letter grade.

ANTH 704. Evolution and Ecology. 3 Credits.
Continuation of topics covered in 703, with an emphasis on ecological and evolutionary perspectives on contemporary human biology and behavior.
Requisites: Prerequisite, ANTH 703; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

ANTH 705. Archaeological Theory. 3 Credits.
Review of the recent history of archaeology and contemporary approaches to archaeological interpretation.
Grading status: Letter grade.

ANTH 710. Writing and Publishing in Anthropology. 3 Credits.
A seminar on the peer review and analysis of student writing. Training in writing for academic publication.
Grading status: Letter grade.

ANTH 711. Feminist Ethnography. 3 Credits.
This graduate seminar considers issues in qualitative research methodology through reading and discussing feminist ethnographies and critical assessments of such work. Asks questions about interdisciplinarity and the dilemmas of field research and writing. Highlights the feminist politics of positionality of the researcher and the ethnographic representation of subjects of research.
Grading status: Letter grade.

ANTH 714. Current Issues in Participatory Research: A Workshop Course. 1 Credit.
This one-hour course is open to UNC graduate students interested in Participatory Research (PR). It is required for the Graduate Certificate in PR and designed to integrate new students into the intellectual discussions and the PR community on campus.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

ANTH 715. Feminism and Society. 3 Credits.
Selected topics in feminist analysis of social life, with materials drawn from a global range of societies.
Grading status: Letter grade
Same as: WGST 715.

ANTH 717. Advanced Studies in Art and Architecture. 3 Credits.
Intensive study of selected topics and issues in the analysis and interpretation of prehistoric and cross-cultural art, architecture, and other aesthetic forms.
Requisites: Prerequisite, ANTH 334; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

ANTH 723. Seminar in Anthropological Linguistics. 3 Credits.
Selected topics from general linguistics and sociolinguistics, special emphasis on methods and problems involved in analysis and description of semantic structure of language and its relation to the rest of culture.
Grading status: Letter grade
Same as: LING 723.

ANTH 724. Seminar in Anthropology and Cybernetics. 3 Credits.
Examination of systems theory, or cybernetics; evaluation of previous applications of cybernetic models in anthropology; and original analysis of anthropological data in these terms by students.
Grading status: Letter grade.

ANTH 725. Quantitative Methods in Anthropology. 3 Credits.
Survey of standardized data-gathering techniques, problems in research design, and methods of quantitative analysis encountered in anthropological research.
Grading status: Letter grade.

ANTH 726. Quantitative Methods in Archaeology. 3 Credits.
Introduction to quantitative and computer methods in archaeology. The course stresses exploratory data analysis and graphical pattern recognition techniques.
Grading status: Letter grade.

ANTH 727. Archaeology of North America. 3 Credits.
The history of American Indian cultures from 10,000 BCE to the time of the European colonization as reconstructed by archaeological research. Special emphasis on the eastern and southwestern United States.
Grading status: Letter grade.

ANTH 728. Seminar in American Archaeology. 3 Credits.
This seminar covers current research topics in North American archaeology, with an emphasis on the eastern or southwestern United States. Specific topics may vary from year to year.
Grading status: Letter grade.

ANTH 729. Research Strategies in Archaeology. 3 Credits.
This seminar develops student's skills in crafting research designs, proposals, and presentations. Examples and readings focus on archaeology and bioarchaeology but the skills covered are widely applicable.
Grading status: Letter grade.

ANTH 733. Advanced Seminar in Caribbean Studies. 3 Credits.
Permission of the instructor. Survey of Caribbean cultural development for students with some knowledge or experience in the area. Particular attention is given to current problems and recent theoretical issues.
Grading status: Letter grade.

ANTH 740. Power. 3 Credits.
Theories of power within anthropology, from Marxism, poststructuralism, feminist studies, studies in race relations, cultural studies, others.
Grading status: Letter grade.

ANTH 744. Seminar in Ethnicity and Cultural Boundaries. 3 Credits.
Investigation of recent theoretical approaches to ethnic phenomena; consideration of cases ranging from tribal organization to complex industrial nations; analysis of particular ethnographic and ethnohistorical situations by individual students.
Grading status: Letter grade.

ANTH 749. Cultural Production. 3 Credits.
Critical examination of theories of social and cultural (re)production (e.g., Bourdieu's practice theory, cultural studies, and resistance theory) applied to enduring issues (e.g., the relations between power and gender, race, and class).
Grading status: Letter grade.

ANTH 750. Seminar in Medical Anthropology. 3 Credits.
Specially designed for, but not restricted to, students who are specializing in medical anthropology. Medicine as part of culture; medicine and social structure viewed crossculturally; medicine in the perspective of anthropological theory; research methods. A special purpose is to help students plan their own research projects, theses, and dissertations.
Grading status: Letter grade.

ANTH 751. Seminar on the Anthropological Contribution to the Understanding of Medical Systems. 3 Credits.
Anthropological contributions to the understanding of medical systems, sickness, and public health. Attention is given to the ways in which medical anthropology illuminates social processes, beliefs, and ideologies.
Grading status: Letter grade.

ANTH 752. Transcultural Psychiatry. 3 Credits.
Considers cross-cultural variations in the perception, definition of, and reaction to course and treatment of deviant behavior--especially mental disorders.
Requisites: Prerequisite, ANTH 470 or 525; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

ANTH 753. Gender, Sickness, and Society. 3 Credits.
This seminar deals in depth and cross-culturally with the nature of gender and the ways in which social comprehension of gender, gender status, and gender relationships impinge upon differential experience of health and sickness of men and women from a historical and contemporary perspective.
Grading status: Letter grade
Same as: WGST 753.

ANTH 754. Phenomenological Anthropology. 3 Credits.
Permission of the instructor. The course aims to apply the theories and methods of phenomenology to the practice of anthropology.
Grading status: Letter grade.

ANTH 755. Seminar in Ecology and Population. 3 Credits.
Mutual relationships of environment, social structure, mortality, and natality, reviewed in an evolutionary framework.
Grading status: Letter grade.

ANTH 756. The Evolution of Human Cognition. 3 Credits.
Permission of the instructor. A critical exploration of contemporary evidence on the evolution of human cognition and consciousness, including phylogenetic, comparative (interspecific), ontogenetic, and cross-cultural perspectives.
Grading status: Letter grade.

ANTH 759. Identity and Agency. 3 Credits.
Sociogenic theories of identity, agency, and human consciousness - the works of Mikhail Bakhtin, Pierre Bourdieu, and others - examined ethnographically and cross-culturally in selected fields of social activity.
Grading status: Letter grade.

ANTH 760. Seminar in Human Evolutionary Ecology. 3 Credits.
Permission of the instructor for undergraduates. Examination of evolutionary ecology concepts with existing or potential uses in human adaptation research, including adaptation and optimization, effective environmental properties, foraging strategies, niche, competitive exclusion, life history tactics, and biogeography.
Grading status: Letter grade.

ANTH 765. Seminar in the Anthropology of Law. 3 Credits.
This course analyzes the nature of law and conceptions of authority in various Asian, African, and American preliterate societies. Using theories of social cohesion and process, the course relates law to the economy, social organization, religious ideology, and political institutions.
Grading status: Letter grade.

ANTH 766. SEMINAR IN ETHNOBOTANY. 3 Credits.
Permission of the instructor. The focus is on economic plants and primitive technology, ecological relationships between man and plants, and analysis and interpretation of archaeological plant remains. Some laboratory work is expected.
Grading status: Letter grade.

ANTH 770. Seminar on Anthropological Perspectives on Latin America. 3 Credits.
The seminar focuses on the interaction of five major issues in Latin America: class, ethnicity, gender, religion, and health.
Grading status: Letter grade.

ANTH 777. Human Rights and Humanitarianism. 3 Credits.
This seminar examines human rights claims and contemporary moral discourse about human suffering from the perspective of anthropology.
Grading status: Letter grade.

ANTH 788. Observation and Interpretation of Religious Action. 3 Credits.
Explores religious action through field work as a way of studying method and theory.
Grading status: Letter grade.

ANTH 790. Dialectology. 3 Credits.
Principles and methods of areal linguistics and social dialectology.
Grading status: Letter grade
Same as: LING 790.

ANTH 793. Linguistic Field Methods I. 3 Credits.
Analysis and description of a language unknown to the class from data solicited from a native-speaker consultant.
Grading status: Letter grade.

ANTH 808. Researching and Writing Lives. 3 Credits.
The course focuses on developing students' qualitative and analytic research skill through a project that culminates in writing a life story. Students will design a research plan, develop a research relationship with an interlocutor, hone methodological techniques, discuss ethical concerns, strengthen analytic interpretation, and produce a polished life narrative.
Grading status: Letter grade.

ANTH 809. Ethnographic Methods. 3 Credits.
Explores method and theory of ethnographic research, including its critical development, ethical challenges, personal trasformations, and place as social scientific inquiry. Field project required.
Grading status: Letter grade.

ANTH 810. Seminar in the Anthropology of Meaning. 1 Credit.
Ongoing seminar for students and faculty participating in the Anthropology of Meaning concentration.
Grading status: Letter grade.

ANTH 817. The Concept of Teaching General Anthropology. 3 Credits.
Permission of the department. Directed course preparation and review of teaching techniques, films, and other aids.
Grading status: Letter grade.

ANTH 818. Training in the Teaching of Anthropology. 3 Credits.
Permission of the department. The trainee teaches a small class in general anthropology under supervision.
Requisites: Prerequisite, ANTH 817.
Grading status: Letter grade.

ANTH 850. Engaging Ethnography. 3 Credits.
What is engaged ethnography? We often speak of engaged research, but what does it look like on the ground? How is it represented through textual narrative? And what difference does it make in the "real" world? In this seminar students "engage" these questions in an examination of ethnographies produced by politically- and community-engaged researchers, exploring how methodologies, epistemologies, and the products of research are transformed by various forms of engagement.
Grading status: Letter grade.

ANTH 860. Art of Ethnography. 3 Credits.
A field-based exploration of the pragmatic, ethical, and theoretical dimensions of ethnographic research, addressing issues of experience, aesthetics, authority, and worldview through the lens of cultural encounter. Field research required.
Grading status: Letter grade
Same as: FOLK 860.

ANTH 897. Seminar in Selected Topics. 1-4 Credits.
Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

ANTH 898. Seminar in Selected Topics. 1-4 Credits.
Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

ANTH 901. Reading and Research. 1-4 Credits.
Permission of the instructor. Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

ANTH 902. Reading and Research. 1-4 Credits.
Permission of the instructor. Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

ANTH 915. Reading and Research in Methodology. 1-4 Credits.
Permission of the instructor. Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ANTH 916. Reading and Research in Methodology. 1-4 Credits.
Permission of the instructor. Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ANTH 921. Field Research. 3 Credits.
Permission of the instructor. Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ANTH 922. Field Research. 3 Credits.
Permission of the instructor. Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ANTH 993. Master's Research and Thesis. 3 Credits.
Individual research in a special field under the direction of a member of the department.
Repeat rules: May be repeated for credit.

ANTH 994. Doctoral Research and Dissertation. 3 Credits.
Individual research in a special field under the direction of a member of the department.
Repeat rules: May be repeated for credit.

DEPARTMENT OF APPLIED PHYSICAL SCIENCES (GRAD)

Contact Information

Department of Applied Physical Sciences
Visit Program Website (http://aps.unc.edu)

Richard Superfine, Chair

M. Gregory Forest, Vice Chair

Sean Washburn, Associate Chair for Graduate Studies

The Department of Applied Physical Sciences at the University of North Carolina at Chapel Hill is an interdisciplinary graduate program that brings together faculty members from chemistry, mathematics, physics and astronomy, and various departments across the University to engage in research and training in applications of the physical sciences. The primary areas of emphasis in the program are optical and electronic materials, nanomaterials, polymers, and biomaterials. Students pursuing M.S. and Ph.D. degrees in materials science begin their studies with a core curriculum covering the fundamentals of materials, including their structures, surfaces, fabrication, thermodynamics, and materials science laboratory techniques. They continue with elective courses offered by the curriculum or the other departments as appropriate to their area of research concentration. Graduate students engage in research under the supervision of one of the participating materials science faculty in the Department of Applied Physical Sciences.

Research Interests

The four areas of research emphasized in the program are electronic, nano, polymer, and biomaterials. These four areas are not discrete, however, as research projects in electronic polymers, nonlinear optics of polypeptides on surfaces, liquid crystals, and wear in polyethylene artificial joints demonstrate. Individual faculty members may have research interests in more than one of the primary areas, and may collaborate with others to address all four. For detailed information on the graduate program, please consult the Web site (g-admit-apsc@unc.edu) or call the graduate student coordinator at 919-962-4703.

Facilities and Equipment

Students and faculty members in the curriculum have access to the following central facilities located in various departments: NMR (2), computer modeling and computer graphics, confocal microscopy, electron microscopy (SEM, TEM, and STEM), FIB, glass shop, machine shop (2), laser lab, mechanical testing, mass spectroscopy, and X-ray diffraction. In addition, a variety of equipment is located in individual research laboratories. This includes equipment for thermal analysis; polymer synthesis; FTIR, UV-Vis, Raman, and photoluminescence spectroscopy; ellipsometry; CVD; MBE; thermal oxidation; AFM; electrical measurements; nonlinear optics; and low temperatures and high pressures. Facilities at North Carolina State University in Raleigh and MCNC in Research Triangle Park are also available.

Fellowships and Assistantships

Teaching assistantships are available to qualified graduate students. The duties of teaching assistants include teaching laboratory sections, assisting in the supervision of advanced laboratories, teaching recitation sections, and grading papers. Summer support is generally available. Research assistantships are also offered.

Degree Requirements

The Ph.D. degree requirements include completion of a suitable set of courses, cumulative written comprehensive exams, a preliminary doctoral oral exam, an original research project culminating in a dissertation, and a final oral exam. The M.S. degree requirements include completion of a suitable set of courses, cumulative written comprehensive exams, a research project, and a final oral exam. The general regulations of The Graduate School govern credit hour, residency, and examination requirements.

Courses

All graduate students must pass the following courses or appropriate ones approved by the curriculum, or must have passed their equivalents elsewhere:

Code	Title	Hours
APPL 470	Fundamentals of Materials Science	3
APPL 473	Chemistry and Physics of Surfaces	3
MTSC 615	Structure of Solids	3
MTSC 720	Materials Fabrication	3
MTSC 730	Statistical Thermodynamics	3
MTSC 735	Techniques in Materials Science	3

Each student also takes additional courses offered by the curriculum or participating departments, as appropriate for his or her area of study.

Comprehensive Exam

M.S. students must pass three core exams and one specialty exam. Ph.D. students must pass four core exams and two specialty comprehensive exams. Topics for the specialty exams will be research areas represented in the materials science program at UNC–Chapel Hill; core exams cover the fundamental knowledge of materials science. All students are required to complete the comprehensive exam by the end of their second year.

Preliminary Doctoral Oral Exam

Students are required to select a research adviser during the first year in graduate school and a thesis committee before they take the preliminary doctoral exam. To pass the preliminary doctoral oral exam, students must present to the dissertation committee and successfully defend their Ph.D. research proposal by the end of the third year.

Professors

Joseph M. DeSimone (Chemistry), Polymeric Materials Synthesis
Theo J. Dingemans (APS), High-Performance Polymers
Greg Forest (Mathematics), Flow and Structure of Complex Polymeric Fluids, Weakly Compressible Transport Phenomena, Solitons and Optical Fiber Applications, Inverse Problems for Material Characterization, Modeling of Transport in Multiphase Porous Media
Jinsong Huang (APS), Materials for Solar Conversion
Thomas Meyer (Chemistry - APS), Inorganic Chemistry, Solar Energy Conversion and Artificial Photosynthesis
Peter Mucha (Mathematics), Complex Systems, Networks, Complex Fluids
J. Michael Ramsey (Chemistry), Analytical Chemistry, Microfabricated Chemical Instrumentation, Microfluidics, Nanofluidics

Edward T. Samulski (Chemistry - APS), Liquid Crystals and Liquid Crystal Polymers
Richard Superfine (Physics and Astronomy - APS), Interfacial Ordering of Molecules
Sean Washburn (Physics and Astronomy - APS), Quantum Transport, Mechanical and Electrical Response of Nanostructures.

Associate Professors

Rene Lopez (Physics and Astronomy - APS), Optical Materials, Photonic Structures, Photovoltaics
Wei You (Chemistry - APS), Organic and Polymer Synthesis, Organic Solar Cells, Molecular Electronics, Organic Spintronics

Assistant Professors

Scott Warren (Chemistry - APS), Supramolecular and Solid-State Chemistry for Materials Design
Daphne Klotsa (APS), Active Matter
Ehssan Nazockdast (APS), Modeling/Simulation of Biophysical Phenomena

Affiliated Faculty

Nancy L. Allbritton (BME and Chemistry), Signaling in Single Cells, Microfabricated Systems for Cellular Analysis
James Cahoon (Chemistry), Nanoparticle Synthesis and Characterization
Jianping Lu (Physics and Astronomy), Theoretical Studies of Materials
Laurie E. McNeil (Physics and Astronomy), Structure-Property Relations, Optical Spectroscopy
Jerry Meyer (Chemistry), New Materials for Energy Conversion
Lu-Chang Qin (Physics and Astronomy), Synthesis and Structure of Nanomaterials
Michael Rubinstein (Chemistry), Molecular Models of Polymers
Sergei S. Sheiko (Chemistry), Dynamics of Single Molecule on a Surface
Frank Tsui (Physics and Astronomy), Synthesis of Artificially Structured Materials
Yue Wu (Physics and Astronomy), Quasicrystals, Nanocrystals, Nanotubes and Molecular Motion in Polymers
Otto Zhou (Physics and Astronomy), Synthesis, Properties and Applications of Nanomaterials

APPL

Advanced Undergraduate and Graduate-level Courses

APPL 411. Practical Electronics for Everyone. 1 Credit.
Design and fabrication for practical electronics circuits, including interfacing with sensors and actuators.
Grading status: Letter grade.

APPL 412. Turning Your Entrepreneurial Ideas Into Reality. 3 Credits.
Students will work in groups on a semester project to turn their entrepreneurial ideas into reality.
Requisites: Prerequisite, APPL 110; permission of the instructor for students lacking the prerequisite.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

APPL 413. LabView for Data Acquisition. 1 Credit.
The basics of data acquisition and hardware interfacing using LabVIEW graphical programming.
Grading status: Letter grade.

APPL 420. Introduction to Polymer Chemistry. 3 Credits.
Chemical structure and nomenclature of macromolecules, synthesis of polymers, characteristic polymer properties.
Requisites: Prerequisite, CHEM 261 or 261H; pre- or corequisites, CHEM 262 or 262H, and 262L or 263L.
Grading status: Letter grade
Same as: CHEM 420.

APPL 421. Synthesis of Polymers. 3 Credits.
Synthesis and reactions of polymers; various polymerization techniques.
Requisites: Prerequisites, CHEM 251 and 262 or 262H.
Grading status: Letter grade
Same as: CHEM 421.

APPL 422. Physical Chemistry of Polymers. 3 Credits.
Polymerization and characterization of macromolecules in solution.
Requisites: Prerequisites, CHEM 420 and 481.
Grading status: Letter grade
Same as: CHEM 422.

APPL 423. Intermediate Polymer Chemistry. 3 Credits.
Polymer dynamics, networks and gels.
Requisites: Prerequisite, CHEM 422.
Grading status: Letter grade
Same as: CHEM 423.

APPL 460. Optical Instrumentation for Scientists and Engineers. 3 Credits.
This course introduces principles of optical system design, covering a broad variety of imaging and microscopy instruments. The material will include computational methods for optical signal processing and basic principles governing light-matter interactions. The course will include theory and hands-on experience to implement and test methods. We will discuss recent publications and state-of-the-art optical systems which are task-driven, controlled by computers, tailored to specific applications, and optimized to monitor or manipulate complex systems.
Requisites: Prerequisite, MATH 383; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

APPL 470. Fundamentals of Materials Science. 3 Credits.
Crystal geometry, diffusion in solids, mechanical properties of solids, electrical conduction in solids, thermal properties of materials, phase equilibria.
Requisites: Prerequisite, CHEM 482 or PHYS 128. Pre- or corequisite, PHYS 441.
Grading status: Letter grade
Same as: CHEM 470.

APPL 472. Chemistry and Physics of Electronic Materials Processing. 3 Credits.
Permission of the instructor. A survey of materials processing and characterization used in fabricating microelectronic devices. Crystal growth, thin film deposition and etching, and microlithography.
Requisites: Prerequisite, CHEM 482 or PHYS 117 or 119.
Grading status: Letter grade
Same as: PHYS 472, CHEM 472.

APPL 473. Chemistry and Physics of Surfaces. 3 Credits.
The structural and energetic nature of surface states and sites, experimental surface measurements, reactions on surfaces including bonding to surfaces and adsorption, interfaces.
Requisites: Prerequisite, CHEM 470.
Grading status: Letter grade
Same as: CHEM 473.

APPL 475. Design and Fabrication of Fluids Monitoring Devices. 1 Credit.
Review of fluid mechanics including the fundamentals of pressure/flow relationships, fluid properties, and flow regimes. Students will design and create physical prototypes that demonstrate specific concepts and measure defined parameters. Students will use the BeAM makerspace network extensively to make things that illustrate fluid device design. Class time will include exercises to reinforce concepts and a guided design activity to create a physical device. Required preparation: BeAM orientation, laser training, and 3D-printer training.
Grading status: Letter grade.

APPL 490. Special Topics. 1-3 Credits.
Topics vary from semester to semester.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 9 total completions.
Grading status: Letter grade.

APPL 491L. Materials Laboratory I. 2 Credits.
Structure determination and measurement of the optical, electrical, and magnetic properties of solids.
Requisites: Prerequisites, APPL 470 and PHYS 351.
Grading status: Letter grade
Same as: PHYS 491L.

APPL 492L. Materials Laboratory II. 2 Credits.
Continuation of PHYS 491L with emphasis on low- and high-temperature behavior, the physical and chemical behavior of lattice imperfections and amorphous materials, and the nature of radiation damage.
Requisites: Prerequisite, APPL 491L or PHYS 491L.
Grading status: Letter grade
Same as: PHYS 492L.

APPL 520L. Polymer Chemistry Laboratory. 2 Credits.
Various polymerization techniques and characterization methods. One four-hour laboratory each week.
Requisites: Pre- or corequisite, CHEM 420 or 421 or 425.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade
Same as: CHEM 520L.

APPL 573. Introductory Solid State Physics. 3 Credits.
Crystal symmetry, types of crystalline solids; electron and mechanical waves in crystals, electrical and magnetic properties of solids, semiconductors; low temperature phenomena; imperfections in nearly perfect crystals.
Requisites: Prerequisite, PHYS 421; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: PHYS 573.

APPL 590. Special Topics in Applied Physical Sciences. 3 Credits.
Advanced specialty topics in applied physical sciences for undergraduates and graduates.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

APPL 690. Special Topics in Applied Physical Sciences. 3 Credits.
Advanced specialty topics in applied physical sciences for undergraduate and graduates.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

MTSC

Advanced Undergraduate and Graduate-level Courses

MTSC 615. Structure of Solids. 3 Credits.
Crystallography, reciprocal lattices, Bloch waves, band structure, electronic wave functions, phonons, thermal expansion. Superlattice structures, including liquid crystals. Overview of properties of ceramic, amorphous, polymeric, and composite materials.
Grading status: Letter grade.

Graduate-level Courses

MTSC 710. Seminar in Materials Science and Engineering. 1 Credit.
Students will discuss topics concerning contemporary materials science and engineering and will learn skills and knowledge required to be successful graduate students. The seminars will include workshops presented by invited speakers and research presentations by first- and second-year PhD students. Students are expected to read publications and/or assigned materials, be prepared to present their findings, and participate in class discussion. Course previously offered as APPL 710.
Grading status: Letter grade.

MTSC 715. Visualization in the Sciences. 3 Credits.
Computational visualization applied in the natural sciences. For both computer science and natural science students. Available techniques and their characteristics, based on human perception, using software visualization toolkits. Project course.
Grading status: Letter grade
Same as: COMP 715, PHYS 715.

MTSC 720. Materials Fabrication. 3 Credits.
Permission of the department. Introduction to materials fabrication and characterization techniques. Includes single crystal growth, thin film deposition, synthesis of quantum dots and nanotubes/nanowires, dielectric and electron emissive materials, nanocomposites, bioceramics, and energy storage materials.
Grading status: Letter grade.

MTSC 730. Statistical Thermodynamics. 3 Credits.
Permission of the instructor. Theory of ensembles and interactions in statistical mechanics. Classical and quantum statistics. Applications to simple systems: ideal gas, heat capacity of solids, blackbody radiation, phase transitions.
Grading status: Letter grade.

MTSC 735. Techniques in Materials Science. 3 Credits.
Permission of the department. Lecture and laboratory in materials analysis techniques, including microscopy, X-ray diffraction and fluorescence, magnetic resonance, thermal analysis, XPS, channeling and RBS, mechanical properties, optical spectroscopy.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

MTSC 740. Advanced Biomaterials. 3 Credits.
Medical or dental implants or explants are highlighted from textbooks, scientific literature, and personal accounts.
Requisites: Prerequisite, BMME 510; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: BMME 740.

MTSC 745. Chemistry of Biomaterials. 3 Credits.
Focuses on the chemistry and chemical structure-function relationships of soft synthetic biological materials. Topics include chemistry of proteins, peptides, nucleic acids, polysaccharides and lipids, and their incorporation into biomaterials and biosensors; enzymatic reactions; chemical modification of organic and inorganic surfaces using self-assembled monolayer chemistries, bioconjugation chemistries, synthesis of nanoparticles and their application as sensors, application of biological materials for logic operations, fundamentals of supramolecular chemistry.
Grading status: Letter grade.

MTSC 750. Kinetics, Diffusion, and Phase Transitions of Materials. 3 Credits.
Reaction kinetics in bulk materials. Mass transport, microstructural transformations, and phase transitions in condensed phases. Atom diffusion in solids. Spinodal decomposition.
Grading status: Letter grade.

MTSC 755. Polymer Processing and Properties. 3 Credits.
How does one process ultrahigh molecular weight polyethylene into ultra-strong fibers or how would you design a polymer shape-memory actuator? Polymer chemistry is important but equally important is the way how polymers are processed. In this course we will discuss the relationship between polymer chemistry, processing and the final, after processing, properties. We will discuss different processing methods that are currently in use) and which parameters play a role in controlling the final properties.
Grading status: Letter grade.

MTSC 760. Complex Fluids: Theory and Applications. 3 Credits.
Complex fluids are materials we encounter everyday such as pastes, gels, foams, blood, and tissue, yet ones that cannot be categorized within the traditional three states of matter (solid/gas/liquid). In this course, we introduce the main physical and mathematical concepts of the continuum mechanics of complex fluids and follow with microscopic approaches. The course is designed to focus on both theory and applications with hands-on activities and examples.
Grading status: Letter grade.

MTSC 765. Electronic Materials and Devices - Organic and Inorganic. 3 Credits.
The course introduces the electronic and optical processes in organic molecules and polymers that govern the behavior of practical organic optoelectronic devices. The course begins with an overview of fundamental science of electronic materials and devices. We then discuss their optoelectronic properties of organic molecules, including topics from photophysics, charge transport and injection. Emphasis will be equally placed on the use of both inorganic and organic electronic materials in organic electronic devices.
Grading status: Letter grade.

MTSC 780. Advanced Materials Science. 3 Credits.
This course covers the physical fundamentals of material science with an in-depth discussion of structure formation in soft and hard materials and how structure determines material mechanical, electrical, thermal, and optical properties. Topics include amorphous and crystal structures, defects, dislocation theory, thermodynamics and phase diagrams, diffusion, interfaces and microstructures, solidification, and theory of phase transformation. Special emphasis will be on the structure-property relationships of (bio)polymers, (nano)composites, and their structure property relationships.
Grading status: Letter grade
Same as: BMME 780, CHEM 780, PHYS 780.

MTSC 785. Introduction to Scientific Computing for Materials. 3 Credits.
An introduction to scientific computing key concepts and applying these concepts to solve problems, focusing on materials science and engineering. An overview of the mathematics basis of each numerical technique is followed with computer programming during and outside of class to apply those techniques. The course will require a final project to understand application software commonly used in materials science and engineering, including molecular dynamics (MD) software and in continuum modeling software.
Grading status: Letter grade.

MTSC 810. Device Physics and Electronic Properties of Solids. 3 Credits.
Survey of crystal structure, bandstructure, transport. Overview of FETs, heterostructures, light emission, dissipation, noise, integrated circuits, solar cells, and ceramics. Emphasis on physical sources of device behavior.
Requisites: Prerequisites, APPL 470 or PHYS 573, MTSC 615, and 730; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

MTSC 820. Optical Properties of Solids. 3 Credits.
Reflection, waveguides, nonlinear optics, optical switching, photorefraction, optical storage. Optical coupling to electronic states, device applications, optical computing.
Requisites: Prerequisites, APPL 470 or PHYS 573, and PHYS 415; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

MTSC 830. Ion-Solid Interactions. 3 Credits.
Interatomic potentials, range distribution, radiation damage, annealing, secondary defects, analytical techniques, silicon-based devices, implantation in compound semiconductors, and buried layer synthesis. Ion implantation in metals, ceramics, polymers, and biomaterials.
Requisites: Prerequisite, APPL 470 or PHYS 573; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

MTSC 840. New Technologies and Device Architecture. 3 Credits.
Survey of novel and emerging device technologies. Resonant tunneling transistors, HEMT, opto-electronic devices and optical communication and computation, low-temperature electronic, hybrid superconductor devices.
Requisites: Prerequisites, APPL 470 or PHYS 573, MTSC 615, and 730; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

MTSC 871. Solid State Physics. 3 Credits.
Equivalent experience for students lacking the prerequisite. Topics considered include those of PHYS 573, but at a more advanced level, and in addition a detailed discussion of the interaction of waves (electromagnetic, elastic, and electron waves) with periodic structures, e.g., X-ray diffraction, phonons, band theory of metals and semiconductors.
Requisites: Prerequisite, PHYS 421.
Grading status: Letter grade
Same as: PHYS 871.

MTSC 872. Solid State Physics II. 3 Credits.
Topics considered include quantum and thermal fluctuations, and thermodynamics of phase transitions in a broad variety of condensed matter systems, their kinetic theory and hydrodynamics, novel materials (two-dimensional electron gas, graphene, topological insulators and superconductors, Dirac/Weyl/nodal line semimetals), condensed matter applications of modern field-theoretical methods (path integral, renormalization group, holography).
Requisites: Prerequisite, PHYS 871.
Grading status: Letter grade
Same as: PHYS 872.

MTSC 891. Special Topics in Material Science. 1-3 Credits.
Permission of the department. Current topics in materials science, including electronic and optical materials, polymers, and biomaterials.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

MTSC 892. Special Topics in Material Sciences. 3 Credits.
Advanced specialty topics in material sciences for graduate students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

MTSC 893. Special Topics in Material Sciences. 3 Credits.
Advanced specialty topics in material sciences for graduate students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

MTSC 894. Special Topics in Material Sciences. 3 Credits.
Advanced specialty topics in material sciences for graduate students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

MTSC 895. Special Topics in Material Sciences. 3 Credits.
Advanced specialty topics in material sciences for graduates students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

MTSC 896. Special Topics in Material Sciences. 3 Credits.
Advanced specialty topics in material sciences for graduates.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 1 total completions.
Grading status: Letter grade.

MTSC 897. Special Topics in Material Sciences. 3 Credits.
Advanced specialty topics in material sciences for graduate students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

MTSC 898. Special Topics in Material Sciences. 3 Credits.
Advanced specialty topics in material sciences for graduate students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

MTSC 899. Special Topics in Material Sciences. 3 Credits.
Advanced specialty topics in material sciences for graduate students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

MTSC 992. Master's (Non-Thesis). 3 Credits.

MTSC 993. Master's Research and Thesis. 3 Credits.
Permission of the department.
Repeat rules: May be repeated for credit.

MTSC 994. Doctoral Research and Dissertation. 3 Credits.
Permission of the department.
Repeat rules: May be repeated for credit.

DEPARTMENT OF ART (GRAD)

Contact Information

Department of Art
Visit Program Website (http://art.unc.edu)

Carol Magee, Chair

For those considering professional careers as art historians (teaching and research), critics, or museum and gallery professionals, the Department of Art and Art History offers graduate work leading to the degrees of master of arts and doctor of philosophy. Those who aim to become professional artists should take the degree of master of fine arts in studio art.

The department houses many resources that are vital to our programs. The Hanes Art Center provides exhibition galleries, an art library, a visual resources library, offices, study areas, classrooms, digital, photography, and printmaking laboratories, a MakerSpace, and artist studios. Additional studios and the metal, ceramic, and wood shops are located in the Art Laboratory building on Airport Drive, one mile from campus.

The Joseph C. Sloane Art Library has a collection of over 100,000 print volumes and is supplemented by the University Libraries, with holdings of more than 6,000,000 volumes. The Sloane Art Library provides quiet study spaces and access to specialized art resources; it also houses the reserve holdings for art department courses. Graduate students have access to the Visual Resources Library and can use different types of scanning equipment (flatbed scanners, slide and film scanners) to digitize images for research. The VRL has current holdings of 250,000 slides, 60,000 digital images, and 20,000 photographs.

Admission

Deadline for applications are in December for art history and in January for studio art. The Graduate School application is submitted via the online application for admission. See both the department's Web site and the Graduate School's Web site (http://gradschool.unc.edu/admissions/instructions.html) for detailed information and deadlines. This user-friendly, online application is faster and easier than completing a paper application and provides for the prompt receipt and distribution of application information. Individuals who are unable to utilize the online application may request a paper application from gradinfo@unc.edu or by phoning (919) 966-2612. Individuals applying to the studio art program will want to load their images in Slide Room as instructed.

Admission Requirements for M.F.A.

We seek applications from individuals committed to their development as professional artists. While the majority of applicants hold a bachelor's degree in art, we also welcome applications from students who hold undergraduate degrees in other fields and can present a strong art portfolio. Students who do not have a bachelor's degree in art should have at least one basic-level and one intermediate-level course in art history in preparation for the graduate-level coursework in art history required of M.F.A. students. Applicants to the M.F.A. program are not required to take the Graduate Record Exam (GRE).

Applicants are admitted for the fall semester only.

All applications must be submitted by posted deadlines and must include the following:

- Graduate School Application
- Undergraduate Transcript
- Three Letters of Recommendation
- Application Fee

Supplemental materials specific to the M.F.A. admission application include the following:

- Statement of Purpose
- Visual Materials for Creative Review
- List of Images Submitted for Creative Review

See the Department of Art and Art History's Web site (http://art.unc.edu/studio-art/graduate-programs/how-to-applydeadlines)for specific instructions.

For more information, contact the director of graduate studies for studio art (https://art.unc.edu/about/contact).

Master of Arts (M.A.) and the Doctorate (Ph.D.) in Art History

In addition to completing an application to The Graduate School (which must include up-to-date GRE scores), the candidate for admission to the graduate programs in art history must submit an example of his/her written work. The writing sample should be no more than 15 pages. All applicants for graduate study in art history are admitted to the program as candidates for the master of arts degree unless they have already received or expect to receive the M.A. degree in art history from another institution. An undergraduate major in art history is not required for M.A. candidacy; however, entering candidates must have taken a minimum of 24 credit hours in art history, archaeology, cultural anthropology, or aesthetics.

There are no spring semester admissions in art history. See the Department of Art and Art History's Web site (https://art.unc.edu/art-history/graduate-programs-in-art-history) for more detailed instructions.

Financial Aid for Studio Art Students

All applicants for admission to the M.F.A. program are automatically considered for nomination for merit awards offered by The Graduate School. Additional support in the form of assistantships and/or specially designated awards is administered directly by the department. Students may apply for teaching fellowships after they have completed the teaching practicum course.[1] Students desiring financial aid should consult as early as possible the Office of Scholarships and Student Aid (http://studentaid.unc.edu) for information about work-study jobs and loans.

1 Students with demonstrable teaching experience at the college level are exempt from this course.

Financial Aid for Art History Students

All applicants for admission who have completed their applications by December 1 are automatically considered by the department for nomination for Graduate School awards. Applicants and students in residence are also eligible for teaching and research assistantships, which are awarded by the department. Students desiring financial aid should consult as early as possible the Office of Scholarships and Student Aid (http://studentaid.unc.edu) for information about work-study jobs and loans.

Master of Fine Arts Degree

The master of fine arts degree at UNC–Chapel Hill is a two-year, 60-hour program. Credits are earned through studio practice, formal critique, professional development, and academic electives. Additionally, a teaching foundation and professional development course that supports the practical aspects of an art career (grant writing, professional presentation, studio visits, with galleries and museums, etc.) is available for students who wish to prepare for an academic career. While this class is optional, it is required for students who wish to apply for teaching fellowships in the M.F.A. program. Because the majority of our funding is offered through teaching fellowships we strongly urge students to take advantage of this opportunity.

Credits for studio practice constitute the majority of credits. These are earned through independent study and critique. All M.F.A. students have individual studio space to support their creative research. With the department's interdisciplinary approach, students need not choose a particular medium for specialization. They may use different media to express a variety of aesthetic and conceptual goals. This, however, does not preclude a media focus but does mean that media choices are integral to students' intellectual and aesthetic explorations.

The structure for feedback in the program is through weekly critiques, when students interact with the studio faculty over the course of the semester. A formal review brings the entire faculty together to evaluate each student's progress at the end of the first semester, and the student's committee members evaluate that progress at the end of the second and fourth semester. The academic component of the M.F.A. program is designed to complement the art making process. The program strongly believes that the decision to pursue the making of fine art in an academic context carries an attendant responsibility to develop the verbal and written articulation of the visual. To help achieve this goal, students participate in two graduate seminars (three credit hours each). Other academic credits are satisfied by a requisite six hours of additional coursework in art history. Usually students are urged to take one of these courses in the area of contemporary art history. Students also take six hours in electives in which the students are able to take advantage of upper division and graduate level courses in fields related to their studio practice or studio courses that help them advance or expand their technical and material skills. Students select these courses depending on the focus of their studio explorations, thus stretching the capacity of their creative work.

The remaining academic credits are earned through the master's thesis. This includes mounting a group exhibition of the thesis work, curated by and at the Ackland Art Museums, as well as a solo show in the Department of Art's Allcott Gallery; writing a thesis statement to accompany the thesis work; and presenting a visual lecture as the M.F.A. thesis defense that is then submitted to the Carolina Digital Repository.

In addition to the core curriculum, the UNC–Chapel Hill master of fine arts program supports students by bringing artists and critics to UNC–Chapel Hill throughout the year. For the Hanes Visiting Artist Lecture Series, artists are typically invited to campus for a two-day visit, during which time they give a public lecture and provide private critiques for the department's graduate students. This program has proved to be a vital conduit for graduate students to see the work of, and interact with, a large and diverse number of professional artists. Additionally, the Visiting Arts Professionals Program brings visiting critics, gallerists, curators, or other art professionals to campus 4–5 times per year to further introduce students to the professional art world, furthering knowledge and fostering mutually beneficial practical and professional connections and relationships. These guests participate in a moderated, informal conversation with students and also conduct studio visits.

Master of Arts Degree

The master of arts degree generally follows the requirements of The Graduate School as described in the section on graduate degree requirements in the *Graduate School Handbook*. Both a broad knowledge of world art and a basic sampling of the diverse theory and methods employed by our faculty in the discipline of art history. The master's program in art history is designed to be completed in four semesters.

Course Work

Total of 12 courses, 36 credits distributed as follows:

- Three required courses: Methods in Art Historical Research (ARTH 850) in the first semester; Master's Thesis Writing Seminar (ARTH 991) and Master's Thesis (ARTH 993) in the fourth semester
- Nine courses, five of which should be graduate research seminars (900-level)

In order to develop breadth of knowledge, both in terms of content and method, students must take at least two courses whose topics cover the time period before 1700 C.E. and two covering the period after 1700 C.E. Additionally, students must take courses with five different members of the graduate faculty.

Language Requirement

By the end of the third semester, all M.A. students are required to have met the language requirement of one language other than English, appropriate to the area of study. The language will be determined in consultation with the student's advisor and the director of graduate studies. The student can demonstrate competency by obtaining a passing grade on the UNC–Chapel Hill reading competency exam, or earning a B (or a graduate P) or better in a fourth semester or higher language course, or earning a B (or a graduate P) in a literature course in that language at UNC–Chapel Hill. No credit toward the M.A. coursework requirement is given for language courses.

Master's Exam

M.A. students take this exam at the beginning of their third semester. Students who do not pass the exam at that time may retake the exam at the end of the third semester. Only students who have successfully passed the exam may register for ARTH 991 (Master's Thesis Writing Seminar) or ARTH 993 (Master's Thesis). The exam is offered only during the fall semester.

Master's Thesis

The M.A. thesis is completed by the end of the fourth semester of enrollment. The completed thesis must be signed by the members of the thesis committee and submitted to The Graduate School in time for May graduation.

Doctor of Philosophy Degree

The degree of doctor of philosophy generally follows the requirements of The Graduate School as described in the section on graduate degree requirements in the *Graduate School Handbook*. Additionally, specific departmental guidelines governing movement through the program, such as the formation of the dissertation committee and scheduling of committee meetings can be found on the departmental Sakai website.

Course Work

Ph.D. students take a total of nine courses, at least four of which are research seminars (900-level), plus a final course, ARTH 994 (Doctoral Dissertation). Two of the nine courses may be taken in other departments as electives for supplementary and complimentary studies.

Electing to Pursue an External Minor

Ph.D. students may choose to complete a formal external minor, which consists of at least five additional courses in a field related to his or her area of specialized study (such as communication studies, women's studies, history, or medieval studies). The student must secure prior approval of the department offering the minor, and a copy of the proposed courses to be taken must be signed by both departments and entered in the student's permanent record in the Department of Art and Art History and the UNC–Chapel Hill Graduate School.

Language Requirement

Ph.D. students are required to demonstrate proficiency in two languages other than English. The first language will be the language that fulfilled the M.A. language requirement. The second language should be appropriate to the area of study and will be determined in consultation with the student's advisor and the director of graduate studies for art history. Some fields require additional languages and students should study these languages as necessary. Competency in the second language will be determined following the same guidelines as those for the M.A. language requirement.

Preliminary Doctoral Exams

Ph.D. students take both the written and the oral preliminary exams during the semester after the Ph.D. coursework is completed. Most Ph.D. students will take the preliminary exams during the spring semester of their second year in the Ph.D. program. Those students pursuing an external minor will take the preliminary exams during the fall semester of their third year.

- *Written Exams.* Students take the written exams over the course of a one-week period. Students who fail the written exams may repeat them only once. These exams are taken in three parts: first major field of study (six hours), second major field of study (six hours), methodological/thematic area of study (six hours).
- *Preliminary Oral Exam.* An oral exam will take place within two weeks of the written exam. The oral will be on the content of the written exams and may also include a defense of the dissertation prospectus. The examining committee will consist of at least three members who must be full-time active graduate faculty members or adjunct teaching faculty members in art history.
- *Dissertation Prospectus.* Ph.D. students defend their dissertation prospectus orally. If the dissertation prospectus is not defended at the oral exam, this defense should take place within four months of the written exams. At least two weeks before the prospectus defense, the student submits a dissertation prospectus to his or her dissertation committee, which should consist of five faculty members, three of whom must be permanent members of the UNC–Chapel Hill art history faculty.

Dissertation and Final Oral Exam

After passing the preliminary doctoral exams, the student begins work on the dissertation. Once the dissertation is completed and approved by the advisor and dissertation committee, the student defends the finished dissertation.

For further information the applicant should write to the director of graduate studies for art history (https://art.unc.edu/about/contact/people).

Professors

Christoph Brachmann, European Art, 1400–1700
S. Elizabeth Grabowski, Printmaking, Painting, Drawing
James Hirschfield, Sculpture
Yun-Dong Nam, Ceramic Sculpture
Victoria L. Rovine, African Art
Daniel J. Sherman, European Art, 1850–1960, Cultural History, Museums
elin o'Hara slavick, Interdisciplinary Practices

Associate Professors

John P. Bowles, African American Art
Eduardo Douglas, Latin American Art
Sabine Gruffat, Digital Art
Cary Levine, Contemporary Art
Carol Magee, African Visual Culture
Mario Marzan, Painting, Drawing, Latin American Art
Roxana Perez-Mendez, Sculpture
Tania String, European Art, 1400–1700
Hong-An Truong, Digital Art
Dorothy Verkerk, Late Antique, Celtic, Early Medieval Art
Lyneise Williams, Latin American and African Diaspora Art

Assistant Professors

Maggie Cao, American Art
Lien Truong, Painting, Drawing

Lecturers

Jennifer J. Bauer, Modern Art
Joy Cox, Digital Art
Gesche Würfel, Photography

Ackland Art Museum:

Peter Nisbet, Adjunct Associate Professor, Deputy Director for Curatorial Affairs, Ackland Art Museum
Carolyn Allmendinger, Adjunct Assistant Professor, Director of Academic Programs, Ackland Art Museum
Elizabeth Manekin, Professor of the Practice, Head of University Programs and Academic Projects

Adjunct Assistant Professors

Ross Barrett, American Art, Boston University
Hérica Valladares, Roman Visual and Literary Culture, Classics Department

Adjunct Professor

Bernard Herman, Visual and Material Culture, Department of American Studies

Professors Emeriti

Jaroslav T. Folda
Arthur Marks
Jerry Noe
Mary Pardo
Marvin Saltzman

Mary C. Sturgeon
Dennis Zaborowski

ARTH (Art History)

Advanced Undergraduate and Graduate-level Courses

The content of these courses varies slightly from year to year in accordance with the needs of the students and the special competence of the instructor.

ARTH 400. German and Netherlandish Renaissance. 3 Credits.
The course focuses on a crucial period of German and Netherlandish art around 1500, referred to as the so-called Age of Dürer, which still shows influences of Gothic art but also of new Italian Renaissance. Often based on artifacts of the Ackland Art Museum, case studies explore the interaction of artists and patrons in important art centers of the time.
Gen Ed: VP, WB.
Grading status: Letter grade.

ARTH 445. The Mexican Mural Renaissance, 1921-1945. 3 Credits.
This course investigates mural painting and state patronage in post-Revolutionary Mexico, from 1921 to 1945, when artists engaged politics in monumental public works. Focuses on the murals of Diego Rivera, José Clemente Orozco, and David Alfaro Siqueiros, as well as on the relationship between art and politics.
Gen Ed: VP, BN.
Grading status: Letter grade.

ARTH 450. The City as Monument. 3 Credits.
A city or cities will be considered as cultural artifact(s), with emphasis given to plans and planning, architecture, public monuments and to various institutions, such as religion, government, the arts, and commerce that initiate or affect these urban developments and forms. Honors version available
Gen Ed: VP.
Grading status: Letter grade.

ARTH 450H. The City as Monument. 3 Credits.
A city or cities will be considered as cultural artifact(s), with emphasis given to plans and planning, architecture, public monuments and to various institutions, such as religion, government, the arts, and commerce that initiate or affect these urban developments and forms.
Gen Ed: VP.
Grading status: Letter grade.

ARTH 451. Women in the Visual Arts II. 3 Credits.
Discussion of topics related to the representation of women in Western art and/or women as producers of art.
Grading status: Letter grade
Same as: WGST 451.

ARTH 452. Brazilian Modernism. 3 Credits.
This course covers the development of modernism in the visual arts in Brazil from 1917, the year in which a Brazilian artist first exhibited "modernist" artworks in Brazil, to 1960.
Gen Ed: VP, BN.
Grading status: Letter grade.

ARTH 453. Africa in the American Imagination. 3 Credits.
Examines the ways African art appears in United States popular culture (advertisements, magazines, toys, films, art) to generate meanings about Africa. Addresses intersecting issues of nationalism, multiculturalism, imperialism, nostalgia, race. Restricted to sophomores, juniors, and seniors. Honors version available
Gen Ed: VP, CI, NA.
Grading status: Letter grade
Same as: AAAD 486.

ARTH 453H. Africa in the American Imagination. 3 Credits.
Examines the ways African art appears in United States popular culture (advertisements, magazines, toys, films, art) to generate meanings about Africa. Addresses intersecting issues of nationalism, multiculturalism, imperialism, nostalgia, race. Restricted to sophomores, juniors, and seniors.
Gen Ed: VP, CI, NA.
Grading status: Letter grade
Same as: AAAD 486H.

ARTH 454. Cathedrals, Abbeys, Castles: Gothic Art and Architecture, ca.1130-1500. 3 Credits.
Covers the development of Gothic church and secular architecture in Europe between 1130 and 1500. Explores formal and constructive progress in architecture (including sculpture and stained glass windows) and social, political, and economic aspects of medieval society that affected these developments.
Gen Ed: VP.
Grading status: Letter grade.

ARTH 455. City, Architecture, Art: Nuremberg as a European Artistic Center,1300-1600. 3 Credits.
The course covers the development of art and architecture from ca. 1300 to ca. 1600 in one of the most important medieval and early modern art centers in Europe: Nuremberg, the hometown of the famous German painter Albrecht Dürer (1471-1528).
Requisites: Prerequisite, ARTH 151; permission of the instructor for students lacking the prerequisite.
Gen Ed: VP.
Grading status: Letter grade.

ARTH 456. Art and Visual Culture of South Asia. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. This thematic course explores how objects and monuments are viewed, experienced, and used in a ritual context in South Asia.
Grading status: Letter grade
Same as: ASIA 456.

ARTH 457. Studies in the History of Graphic Art. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. Study of prints and printmaking in Western art from ca. 1400 to the present focusing on selected topics.
Grading status: Letter grade.

ARTH 458. Islamic Architecture and the Environment. 3 Credits.
Explores the ways in which architecture and environment interact in Islamicate societies from the medieval period to the present, including topics such as gardens, palaces, and villas, urban design, and the role of water.
Gen Ed: HS, GL.
Grading status: Letter grade
Same as: ASIA 458.

ARTH 460. Greek Painting. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. A survey of the development of Greek art from geometric to Hellenistic painting through a study of Greek vases, mosaics, and mural paintings.
Grading status: Letter grade
Same as: CLAR 460.

ARTH 461. Archaic Greek Sculpture. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. A focused study of sculpture during the Archaic period in Greece.
Grading status: Letter grade
Same as: CLAR 461.

ARTH 462. Classical Greek Sculpture. 3 Credits.
Permission of the instructor. A focused study of Greek sculpture during the classical period.
Grading status: Letter grade
Same as: CLAR 462.

ARTH 463. Hellenistic Greek Sculpture. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. A focused study of Greek sculpture in the Hellenistic period.
Grading status: Letter grade
Same as: CLAR 463.

ARTH 464. Greek Architecture. 3 Credits.
A survey of Greek architectural development from the Dark Ages through the fourth century BCE. Special topics include the beginnings of monumental architecture, the development of the orders, and interpretations of individual architects in terms of style and proportions.
Requisites: Prerequisite, CLAR 244; permission of the instructor for students lacking the prerequisite.
Gen Ed: HS, NA, WB.
Grading status: Letter grade
Same as: CLAR 464.

ARTH 465. Architecture of Etruria and Rome. 3 Credits.
The development of architecture in the Roman world from the ninth century BCE through the fourth century CE. The course focuses on the development of urbanism and the function, significance, and evolution of the main building types and their geographic distribution.
Requisites: Prerequisite, CLAR 245, CLAR 247, or CLAR/ARTH 263; permission of the instructor for students lacking the prerequisite.
Gen Ed: VP, NA, WB.
Grading status: Letter grade
Same as: CLAR 465.

ARTH 466. History of the Illuminated Book. 3 Credits.
Chronological survey of major developments in book painting during the European Middle Ages from 300 to 1450 CE.
Grading status: Letter grade.

ARTH 467. Celtic Art and Cultures. 3 Credits.
This course explores the art and culture from the Hallstat and La Tène periods (seventh century BCE) to the Celtic "renaissance" (ca. 400-1200 CE).
Gen Ed: HS, WB.
Grading status: Letter grade.

ARTH 468. Visual Arts and Culture in Modern and Contemporary China. 3 Credits.
This course examines visual materials, including those from fine arts, commerce, popular culture, political propaganda, avant-garde movements, etc., produced in modern and contemporary China as an important means of defining China's self-identity in the modern and global world.
Gen Ed: VP, BN.
Grading status: Letter grade
Same as: ASIA 468.

ARTH 469. Art of the Aztec Empire. 3 Credits.
This course provides a comprehensive introduction to the art of the Aztec Empire, including architecture, monumental sculpture, small-scale sculpture, ceramics, painting, lapidary work, gold work, and feather work.
Grading status: Letter grade.

ARTH 470. The Moving Image in the Middle Ages. 3 Credits.
The course explores the range of contexts in which images in the medieval period were made to move; for instance, in rituals, processions, and miracles.
Gen Ed: VP, WB.
Grading status: Letter grade.

ARTH 471. Northern European Art of the 14th and 15th Centuries. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. Advanced study of painting and sculpture in France, England, and the Netherlands, 1300 to 1400.
Grading status: Letter grade.

ARTH 472. Early Modern Art, 1400-1750. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. This course explores specialized themes and/or broad topics in Western European art of the early modern period. Honors version available
Grading status: Letter grade.

ARTH 472H. Early Modern Art, 1400-1750. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. This course explores specialized themes and/or broad topics in Western European art of the early modern period.
Grading status: Letter grade.

ARTH 473. Early Modern and Modern Decorative Arts. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. This course traces major historical developments in the decorative and applied arts, landscape design, and material culture of Western society from the Renaissance to the present.
Gen Ed: VP, NA.
Grading status: Letter grade.

ARTH 474. Roman Sculpture. 3 Credits.
Survey of Roman sculpture (200 BCE-300 CE), including portraiture, state reliefs, funerary monuments, and idealizing sculpture, with emphasis on style, iconography, and historical development of sculpture in its sociocultural, political, and religious contexts.
Requisites: Prerequisite, CLAR 245, CLAR 247 or CLAR/ARTH 263; permission of the instructor for students lacking the prerequisite.
Gen Ed: VP, WB.
Grading status: Letter grade
Same as: CLAR 474.

ARTH 475. Icons and Idols: Debates in Medieval Art. 3 Credits.
This course will examine theories and instances of image making and breaking from the classical world to the early modern world, covering late antiquity, iconoclasm in Byzantium, and the medieval West.
Gen Ed: VP, WB.
Grading status: Letter grade.

ARTH 476. Roman Painting. 3 Credits.
Surveys Roman painting from 200 BCE to 300 CE, with emphasis on style, iconography, historical development of painting in its sociocultural, political, and religious contexts. Treats current debates in scholarship.
Requisites: Prerequisite, any CLAR or ARTH course at the 200-level or higher (preferably CLAR 245, CLAR 247, or CLAR/ARTH 263); permission of the instructor for students lacking the prerequisite.
Gen Ed: VP, WB.
Grading status: Letter grade
Same as: CLAR 476.

ARTH 482. Art and Archaeology of Achaemenid Persia. 3 Credits.
This course will examine the history and material culture of the ancient state known as the Achaemenid Persian Empire through ancient texts and archaeological sources. Beginning in the sixth century BCE, this ancient superpower ruled a vast and culturally diverse empire that stretched from Northern Libya to central Asia. Through an examination of key sites, objects, and texts we will explore the history and diversity of this multicultural empire.
Gen Ed: VP, BN.
Grading status: Letter grade
Same as: CLAR 482.

ARTH 483. Art, Politics, and Society in France, 1850-1914. 3 Credits.
An examination of the interaction of artists, criticism, and the market with larger political and social developments in France, with an emphasis on primary sources.
Gen Ed: VP, NA.
Grading status: Letter grade
Same as: HIST 468.

ARTH 485. Art of the Harlem Renaissance. 3 Credits.
Examines the Harlem Renaissance (1918-1942) as an instance of both transnational modernism and cultural nationalism through study of how artworks articulate interrelated conceptions of race, gender, sexuality, and social class.
Gen Ed: VP, CI, US.
Grading status: Letter grade.

ARTH 488. Contemporary African Art. 3 Credits.
Examines modern and contemporary African art (1940s to the present) for Africans on the continent and abroad. Examines tradition, cultural heritage, colonialism, postcolonialism, local versus global, nationalism, gender, identity, diaspora.
Requisites: Prerequisite, AAAD 101 or ARTH 152 or 155; permission of the instructor for students lacking the prerequisite.
Gen Ed: BN, GL.
Grading status: Letter grade
Same as: AAAD 405.

ARTH 490. Special Topics in Art History. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. Selected topics in art history.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

ARTH 514. Monuments and Memory. 3 Credits.
Explores the role of monuments in the formation of cultural memory and identity, both nationally and globally. Topics include the construction of identities in and through public spaces, commemoration of both singular individuals and ordinary citizens, and the appearance of new types of post-traumatic monuments in the 20th century.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: HIST 514.

ARTH 551. Introduction to Museum Studies. 3 Credits.
Introduces careers in museums and other cultural institutions. Readings and interactions with museum professionals expose participants to curation, collection management, conservation, exhibition design, administration, publication, educational programming, and fundraising.
Gen Ed: VP, EE- Field Work, NA.
Grading status: Letter grade.

ARTH 552. The Literature of Art. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. A study of the principal critics and historians who have contributed to the development of modern art history. Also application of the principles to specific works of art.
Grading status: Letter grade.

ARTH 553. The Body in Social Theory and Visual Representation. 3 Credits.
A study of how the human body has been represented in contemporary art and the relation of those representations to theories of the individual and society.
Grading status: Letter grade.

ARTH 554. Imagining Otherness in Visual Culture in the Americas. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. This course examines representational othering of black, Asian, Latina/o, and Native American people in images in the Americas through postcolonial topics like racial stereotyping, Orientalism, primitivism, essentialism, and universalism.
Grading status: Letter grade.

ARTH 555. Urban Africa and Global Mobility. 3 Credits.
The contemporary arts of Africa are framed by urbanization and global mobility. This course examines how artists examine, reflect on, and express visually experiences of these conditions.
Gen Ed: BN, CI, GL.
Grading status: Letter grade.

ARTH 556. Visual Cultures of the American City, 1750-1950. 3 Credits.
An exploration of the wide field of American art and visual culture inspired by the spaces and social life of the modern city.
Requisites: Prerequisite, ARTH 53, 54, 61, 64, 77, 79, 84, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, or 261; permission of the instructor for students lacking the prerequisite.
Gen Ed: VP, NA.
Grading status: Letter grade.

ARTH 557. Art and Money. 3 Credits.
This course explores intersection of art and economics from the 18th century to the present through themes such as value, markets, counterfeiting, and circulation. It examines money as a visual artifact and artworks that engage with monetary questions in the context of art history and Western economic theory.
Gen Ed: VP, NA.
Grading status: Letter grade.

ARTH 561. Arts of the Islamic Mediterranean. 3 Credits.
Offers an overview of the arts, architecture, and visual culture of the Islamic Mediterranean (its eastern and western shores, Sicily, and North Africa).
Gen Ed: HS, GL.
Grading status: Letter grade
Same as: ASIA 561.

ARTH 562. Islamic Urbanism. 3 Credits.
This course explores the development, urban forms, and social structures of some of the major cities of the medieval Islamic lands.
Requisites: Prerequisite, ARTH 154; permission of the instructor for students lacking the prerequisite.
Gen Ed: HS, BN, WB.
Grading status: Letter grade.

ARTH 583. Theories of Modern Art. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. A study of theoretical issues central to the understanding of trends in modern art (e.g., modernism, the avant-garde, formalism originality).
Grading status: Letter grade.

ARTH 586. Cultural Politics in Contemporary Art. 3 Credits.
Permission of the instructor. This course will examine strategies of critique in contemporary art. Organized thematically, it focuses on the tactics employed by artists who address political, social, or cultural issues through their work.
Grading status: Letter grade.

ARTH 588. Current Issues in Art. 3 Credits.
Addresses select issues that have gained or re-gained prominence in today's art world, for example globalization, training, the market, and the nature of the "contemporary.
Gen Ed: VP, NA.
Grading status: Letter grade.

ARTH 590. Topics in Connoisseurship. 3 Credits.
Permission of the instructor. Works in the Ackland Museum's collection will be studied directly as a means of training the eye and exploring the technical and aesthetic issues raised by art objects.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ARTH 592. History and Theory of Museums. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. Provides an historical overview of museums. Serves as an introduction to many of the theoretical issues museums face including: ethics, audiences, the role of museums in society, exhibiting dilemmas.
Grading status: Letter grade.

ARTH 595. Experience in Research. 1-3 Credits.
Required preparation, one 100-level art history course and one 200- to 399-level art history course. An experiential learning opportunity in independent and original research on a topic or in a field of the student's choosing under the close direction of a faculty supervisor.
Gen Ed: VP, EE- Mentored Research.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ARTH 597. Studiolo to Wunderkammer. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. This course explores the history of early modern collecting, encompassing scholars' and merchants' "study rooms," aristocrats' menageries, humanists' "sculpture gardens," and princely cabinets of wonders.
Grading status: Letter grade.

ARTH 691H. Honors in Art History. 3 Credits.
Permission of the instructor. Independent research directed by a faculty member leading to an honors thesis.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ARTH 692H. Honors in Art History. 3 Credits.
Permission of the instructor. Independent research directed by a faculty member leading to an honors thesis.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

In the seminars listed, the topics for study change from year to year depending upon the professor conducting the course. Architecture, sculpture, painting, or a combination of these may be the subject. Consult the department schedule for details on specific courses in any given semester.

ARTH 750. Advanced Readings Topics in the History of Art. 1-3 Credits.

ARTH 751. Gender and Visual Culture. 3 Credits.

ARTH 755. Museum Studies Apprenticeship. 3 Credits.
Provides experience in some aspect of museum work: curatorial, educational, collections management, exhibition design, administration. Requires a minimum of 90 hours and will have an academic component.
Requisites: Prerequisite, ARTH 551 or ARTH 592; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ARTH 763. Medieval Studies. 3 Credits.

ARTH 777. Colonialism and European Visual Culture, 1800-1990. 3 Credits.
Considers the role of visual representation in the construction of European empire and its associated knowledges from the Napoleonic expedition to Egypt to debates over primitivism in the 1980s.
Grading status: Letter grade
Same as: HIST 777.

ARTH 794. Greek Topography. 3 Credits.
Study of chief archaeological sites of Greece and of existing buildings and monuments. Attention to the problems of excavation and the role of the sites in Greek history.
Grading status: Letter grade
Same as: CLAR 794.

ARTH 798. Roman Topography. 3 Credits.

ARTH 850. Methods in Art Historical Research. 3 Credits.
This course introduces students to a variety of historical and contemporary methods for the interpretation of visual culture.
Grading status: Letter grade.

ARTH 851. alt-Methods: Digital Art History. 3 Credits.
This course introduces students to current digital art history projects and practices as well as methods for approaching art historical research in new ways.
Grading status: Letter grade.

ARTH 852. Professional Development. 1-3 Credits.
This course focuses attention on the variety of ways in which scholars in the arts disseminate their research and market themselves. Students will analyze and participate in various weekly writing and oral exercises, but will focus on one specific genre for their semester long project.
Grading status: Letter grade.

ARTH 910. Seminar in Architecture. 3 Credits.

ARTH 950. Problems in the the History of Art. 3 Credits.

ARTH 952. Seminar in Museum Studies. 3 Credits.

ARTH 954. Seminar in Chinese Art and Architecture. 3 Credits.
Study selected topics in the history of Chinese art and architecture.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ARTH 955. South Asian Art. 3 Credits.

ARTH 956. Seminar in Islamic Art. 3 Credits.
Required preparation, 400-level or higher art history course or permission of the instructor. Graduate seminar for critical issues in Islamic art (for example, Orientalism, historiography of Islamic art, critiquing the Islamic city).
Grading status: Letter grade.

ARTH 957. Seminar in African Art. 3 Credits.

ARTH 958. Seminar in Contemporary Global Arts. 3 Credits.
This seminar examines contemporary artistic production that engages, questions, and challenges the narratives of culture and art that privilege Europe and America as the models for understanding cultural production.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ARTH 959. Seminar in Latin American Art. 3 Credits.
This seminar investigates topics in the history of colonial and modern Latin American Art.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ARTH 960. Seminar in Ancient Art. 3 Credits.

ARTH 961. Seminar in Medieval Art. 3 Credits.

ARTH 968. Tudor and Jacobean Portraits: A Theoretical and Practical Investigation. 3 Credits.
This course involves close and critical examination of a select body of extant portraits from the Tudor and Jacobean periods in English history (1485-1625) in the collection of the North Carolina Museum of Art. Students taking this unit will play an active role in researching these relatively unstudied works of art.
Grading status: Letter grade.

ARTH 971. Seminar in Renaissance Art. 3 Credits.

ARTH 972. Seminar in Baroque Art. 3 Credits.

ARTH 980. Seminar in Modern Art. 3 Credits.

ARTH 981. Seminar in Nineteenth-Century Art. 3 Credits.

ARTH 982. Seminar in American Art. 3 Credits.

ARTH 983. Mexico City: 1890-1950. 3 Credits.
Permission of the instructor. This course examines the visual culture of Mexico City between 1890 and 1950. It also considers works by artists outside of Mexico who were associated and inspired by cultural production here.
Grading status: Letter grade.

ARTH 984. Seminar in Contemporary Art. 3 Credits.
Addresses select topics and theoretical issues relevant to contemporary art.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ARTH 985. Fashioning Power. 3 Credits.
This graduate seminar focuses on fashion (clothing, accessories, style, performance) as the central cultural component for examining power in society.
Grading status: Letter grade.

ARTH 987. Seminar in African American Art. 3 Credits.
Advanced standing in art history or permission of the instructor. Explores current debates crucial to the study of African American art. Emphasis on the variety of theories and methods central to the field.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ARTH 991. Master's Thesis Writing Seminar. 3 Credits.

ARTH 993. Master's Research and Thesis. 3 Credits.

ARTH 994. Doctoral Research and Dissertation. 3 Credits.

ARTS (Studio Art Courses)

Advanced Undergraduate and Graduate-level Courses

ARTS 402. Advanced Painting Projects. 3 Credits.
This course focuses on the historically rich practice of painting, and is designed to guide the advanced painting student through the research, conceptual, aesthetic, and technical components of a comprehensive studio practice, and developing and maintaining a studio work ethic.
Requisites: Prerequisite, ARTS 302, 322, or 352; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ARTS 403. Advanced Sculpture. 1-6 Credits.
Continuation of ARTS 303. May be repeated for credit.
Requisites: Prerequisite, ARTS 303; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ARTS 405. Advanced Darkroom Photography. 3 Credits.
Continuation of ARTS 305 with advanced focus on conceptual topics and black and white analog photography techniques.
Requisites: Prerequisite, ARTS 105.
Gen Ed: VP.
Grading status: Letter grade.

ARTS 409. Art and Science: Merging Printmaking and Biology. 3 Credits.
Permission of the instructors. This class explores the intersection of two disciplines, art and science. Research skills intrinsic to both include curiosity, close observation, experimentation, and visual analysis. Organized around printmaking projects informed by specific topics in biology, students adapt theory and practical skills from both disciplines to create artworks using several printmaking techniques Honors version available
Requisites: Prerequisite, one of BIOL 201, 202, ARTS 105, 106, 202, 205, 206, 208, 209, 238, 415, 458; corequisite, BIOL 409L.
Gen Ed: VP, EE- Performing Arts.
Grading status: Letter grade.

ARTS 409H. Art and Science: Merging Printmaking and Biology. 3 Credits.
Permission of the instructors. This class explores the intersection of two disciplines, art and science. Research skills intrinsic to both include curiosity, close observation, experimentation, and visual analysis. Organized around printmaking projects informed by specific topics in biology, students adapt theory and practical skills from both disciplines to create artworks using several printmaking techniques
Requisites: Prerequisite, one of BIOL 201, 202, ARTS 105, 106, 202, 205, 206, 208, 209, 238, 415, 458; corequisite, BIOL 409L.
Gen Ed: VP, EE- Performing Arts.
Grading status: Letter grade.

ARTS 410. Public Art. 3 Credits.
This studio class explores public art from historical and critical perspective. Students will propose and create works of public art. Opportunities to implement projects will be explored through the Department of Art and other resources.
Requisites: Prerequisite, ARTS 302, 303, or 305; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

ARTS 413. Advanced Ceramic Projects. 3 Credits.
Continuation of ARTS 313. May be repeated for credit.
Requisites: Prerequisite, ARTS 313; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ARTS 415. Conceptual-Experimental Photography. 3 Credits.
An advanced photography course for students interested in contemporary photographic practices, critical theory, art history, and experimental processes: theory and practice, formal and conceptual investigations, and historical and contemporary strategies will all be given equal attention.
Grading status: Letter grade.

ARTS 416. Video Art. 3 Credits.
An introduction to the creative and technical processes in producing video art. Students will shoot and edit their own independent video projects. Some class time will be devoted to viewing video art and other media-based work.
Requisites: Prerequisite, ARTS 106; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

ARTS 417. Advanced Mixed Media Projects. 3 Credits.
Cultural production and practice, theory, and criticism. Pursuit of individual visual projects, formally and conceptually, through theoretical, poetic, art historical, and autobiographical texts, critiques, collaboration, and discussion using all media.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ARTS 418. Advanced Printmaking. 3 Credits.
This course is appropriate for students who have had a minimum of three semesters of prior printmaking experience. Students submit a proposal outlining technical and artistic goals for the semester.
Requisites: Prerequisites, ARTS 208 and any two of ARTS 238, 338, or 348; permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ARTS 423. Installation Art. 3 Credits.
This class explores art that encompasses its audience. Conceptual motivations as well as practical realities of dealing with a specific three-dimensional space will be considered.
Requisites: Prerequisite, ARTS 303; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

ARTS 428. Book Art. 3 Credits.
Required preparation, one additional two-dimensional studio course (drawing, photography, or printmaking). Defining the book as a "multiple and sequential picture plane," this course considers a range of traditional approaches and conceptual departures of the book as a format for creative expression.
Requisites: Prerequisite, ARTS 102.
Gen Ed: VP.
Grading status: Letter grade.

ARTS 458. Photo Printmaking. 3 Credits.
This course combines a technical approach (making printing matrices using photographic processes) with a conceptual framework (the photographic "voice" and its interpretation in printmaking). Artmaking projects explore salient ideas such as appropriation versus capture, documentation, truth-telling and fabrication, or narrative invention using specific technical processes such as photogravure and cyanotype.
Requisites: Prerequisites, ARTS 105 and 208; permission of the instructor for students lacking the prerequisites.
Gen Ed: VP, EE- Performing Arts.
Grading status: Letter grade.

ARTS 490. Advanced Special Topics in Studio Art. 3 Credits.
Required preparation, any intermediate studio art course or permission of the instructor. Advanced consideration of selected topics in studio art.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

ARTS 493. Studio Art Practicum or Internship. 3 Credits.
Required preparation, 15 hours ARTS courses. Allows studio art majors to pursue unpaid practicums or internships for credit. Examples include working as a studio assistant or working in art-related fields, such as galleries, design firms, architectural firms, and nonprofit arts organizations. Work undertaken must comply with Federal criteria governing unpaid internships. Departmental approval required.
Gen Ed: EE- Academic Internship.
Grading status: Letter grade.

ARTS 499. Senior Projects. 3 Credits.
This research-intensive course is designed for B.F.A. students to define and execute a focused body of work or a single large project over the course of a semester. Work may be pursued individually or in collaborative teams. Required for B.F.A. studio art majors. B.A. studio art majors may seek permission from the instructor.
Gen Ed: VP, EE- Performing Arts.
Grading status: Letter grade.

ARTS 500. Senior Seminar. 3 Credits.
Restricted to senior studio art majors. This course is the capstone course for the studio art major. Topics covered include issues of professional development, curatorial practice, and presentation of works of art in exhibition. The culminating project is mounting the Senior Exhibition.
Gen Ed: VP, EE- Field Work.
Grading status: Letter grade.

ARTS 515. Advanced Topics in Photography. 3 Credits.
May be repeated for credit.
Requisites: Prerequisite, ARTS 305; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ARTS 596. Independent Study in Studio Art. 1-4 Credits.
Permission of the instructor. For students wishing to pursue additional media or thematic study beyond the advanced level. Students register with section numbers designated for faculty. May be repeated for credit.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

ARTS 637. Social Practice and Performance Art. 3 Credits.
Students will explore "socially engaged art" practices that challenge the distinction between art and life, are fundamentally collaborative, value process over end product, and utilize action, dialogue, and participation as strategies as an intervention in public discourse.
Gen Ed: VP.
Grading status: Letter grade
Same as: COMM 637.

ARTS 690. Advanced Topics in Studio Art. 3 Credits.
Required preparation, any intermediate studio art course or permission of the instructor. Selected topics in studio art.
Repeat rules: May be repeated for credit. 3 total credits. 1 total completions.
Grading status: Letter grade.

ARTS 691H. Senior Honors Thesis Project in Studio Art. 3 Credits.
Permission of the department. ARTS 691H is designed to enable studio art majors to pursue serious and substantial work. In addition to working with the instructor of record for ARTS 499/691H, students work under the supervision of an individual thesis advisor and committee.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ARTS 692H. Senior Honors Thesis Project in Studio Art. 3 Credits.
ARTS 692H is taught concurrently with and by the instructor for ARTS 500. In addition to the classroom component, students continue to work with an individual thesis advisor and committee. Successful completion of ARTS 692H allows students to graduate with honors or highest honors.
Requisites: Prerequisite, ARTS 691H.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

ARTS 700. Graduate Studio Art Seminar. 3 Credits.

ARTS 701. Teaching Practicum. 3 Credits.

ARTS 710. Graduate Studio. 1-21 Credits.

ARTS 713. Graduate Sculpture. 1-21 Credits.

ARTS 718. Graduate Printmaking. 1-21 Credits.

ARTS 720. Qualifying Review. 2 Credits.

ARTS 798. M.F.A. Graduate Group Critique. 3 Credits.
M.F.A. candidates meet weekly for organized group analysis and critique of their art work. Each candidate presents work on rotating basis before a panel of faculty and peers.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

ARTS 992. Master's Project in Studio Art. 3 Credits.

DEPARTMENT OF BIOCHEMISTRY AND BIOPHYSICS (GRAD)

Contact Information

Department of Biochemistry and Biophysics
Visit Program Website (http://www.med.unc.edu/biochem)

Leslie V. Parise, Chair

The Department of Biochemistry and Biophysics is an administrative division of the School of Medicine and a member of The Graduate School. The graduate program offers instruction and research opportunities leading to the Ph.D. degree. Applicants are offered admission with the expectation that they will complete their doctorate. While the curriculum is designed as a Ph.D. program, a terminal master's degree can be offered under special circumstances.

Modern research in biochemistry and biophysics is designed to address mechanism and function; it utilizes the paradigms of molecular biology but is influenced by chemistry, physics, and genetics. The philosophy of the department and its graduate program is to provide students with broad training in modern approaches to the field and unique opportunities for multidisciplinary training.

Financial Aid and Admissions

Funds available from the University, the department, and individual research grants provide stipends for students. All applicants are considered for special fellowships and research or teaching assistantships. Students typically receive a stipend and coverage of in-state tuition and fees, along with major medical insurance. Nonresidents with predoctoral fellowships or assistantships are recommended for special tuition rates. Applications are considered from prospective graduate students who present evidence of superior scholarship in biology, chemistry, or biochemistry. The department recommends that students prepare themselves by taking general and organic chemistry, biochemistry, biology, physics, and calculus. It is anticipated that students who have not had these courses will take them, as appropriate, after their arrival. Departmental information may be obtained through the department's Web site (http://www.med.unc.edu/biochem). Applicants should apply online at The Graduate School's admission Web site (http://gradschool.unc.edu/admissions).

Research Interests

Faculty member's research interests are diverse and include research in the following areas: cell signaling and growth control, DNA repair and replication, membrane biophysics and function, molecular regulation including transcriptional control, nervous system development and function, and protein structure/function, including enzymology. Model systems used by the faculty range from bacteria to mammals; techniques span molecular biology to physical biochemistry. Please visit the department's Web site (http://www.med.unc.edu/biochem) for more information.

Facilities

The departmental research facilities are centered in the Genetic Medicine Building, which is within walking distance of other medical school departments, research centers, and the departments of biology, chemistry, and physics. The building is equipped with instruments for molecular biological, biochemical, structural, and biophysical research. Animal care facilities are available to support the department's research endeavors. Research and training support is provided by several core facilities on campus.

Students are admitted to the graduate program through the BBSP portal, complete a minimum of three laboratory rotations, and then join the Department of Biochemistry and Biophysics at the end of their first year. All students in the department are required to complete a seminar in biochemistry (BIOC 701) OR seminar in biophysics (BIOC 704); BIOC 712, which is a grant-writing course designed to help prepare students for their comprehensive written examination; and BIOC 715, which is a scientific presentation course. Students are also required to complete six credit hours in core courses and four credit hours of electives. Further information on course requirements (http://www.med.unc.edu/biochem/students/degree-requirements) may be found online. Students in the combined M.D./Ph.D. program are required to complete all course requirements.

The director of graduate studies advises entering students about course selection until the student chooses a research sponsor. Students select research sponsors from the department's primary and joint faculty members following the three laboratory rotations. After a research sponsor has been selected, a dissertation committee is formed to review the student's yearly progress. The examinations required for admission to candidacy for the Ph.D. are administered as a comprehensive oral exam, a comprehensive written exam, and a final oral defense of a dissertation. The comprehensive oral exam (defense of the initial thesis proposal) will stress the dissertation proposal and related areas in an effort to ascertain the student's understanding of the research project that he/she is undertaking. The comprehensive written examination will cover major topics in the areas of biochemistry and biophysics and cell and molecular biology. The most important requirement for the Ph.D. degree is a final oral defense of a dissertation or original research carried out independently by the candidate.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Brian Button, Mucus Biophysical Properties, Role of the Pericilliary Layer (PCL), and Mechanisms of Mucociliary Clearance in the Airways
Sharon Campbell (18), NMR Spectroscopy, Structure and Regulation of Proteins Involved in Ras-Mediated Cell Signaling
Charles W. Carter Jr. (19), Structural Molecular Biology, Protein Structure-Function, X-ray Crystallography of Proteins Including Aminoacyl tRNA Synthetases, Deaminases, Phasing Methods and Crystal Growth
David Clemmons (15), Receptor Signaling
Jean Cook (150), Regulation of DNA Replication in Mammalian Cells
Lyndon Cooper (21), Osteoblast Responses to Physiological Stress: Characterization of the Heat Shock Response and Mechanochemical Deformation and Stimulation
Stephen Crews (24), Molecular Genetics of Nervous System Development, Transcriptional Control, Evolution of Regulatory Mechanisms
Henrik Dohlman (17), Regulators of G Protein Signaling, Mechanisms of Drug Desensitization
Beverly Errede (144), Function and Regulation of MAP-Kinase Activation Pathways in Saccharomyces cerevisiae

Jack Griffith (41), Architecture of DNA-Protein Complexes Involved in Replication, Repair, and Telomere Maintenance; Electron Microscopy
David G. Kaufman (53), Cellular and Molecular Mechanisms of Cancer Development, Epithelial Cell-Stromal Cell Interactions, Cell-Cycle Influences on Carcinogenesis
Hengming Ke (50), X-ray Crystallography, Structure and Function of Biologically Important Proteins such as Phosphodiesterase and Molecular Chaperone System
Brian Kuhlman (72), Computational Protein Design, Protein-Protein Interactions, Structural Biology
Andrew Lee (71), Protein, Structure and Dynamics, NMR Spectroscopy
Patricia F. Maness (68), Mechanisms of Cell Signaling and Adhesion, Axon Guidance and Synaptic Plasticity
William F. Marzluff (69), Control of Gene Activity, Cell-Cycle Regulation in Early Embryos, Control of Expression of Histone mRNA
Gerhard W. Meissner (79), Intracellular Ca2+ Signaling and Regulation of Ion Channels in Striated Muscle
Gary Pielak (99), Protein Structure/Function Using 2-D NMR
Dale Ramsden (108), Repair of Chromosome Breaks, DNA-Protein interactions, Genome Stability
Matthew Redinbo (110), Structural Biology of Proteins and Protein-Nucleic Acid Complexes
Aziz Sancar (105), DNA Repair and Cancer, Structure and Function of DNA Repair Enzymes, Molecular Neurobiology, Reaction Mechanism of Human Blue-Light Photoreceptor
John Sondek (117), Protein Crystallography and Signal Transduction
Brian Strahl (120), Mechanisms of Chromatin-Mediated Gene Transcription
Ronald I. Swanstrom (123), Molecular Biology of HIV, Resistance to HIV Protease Inhibitors
Michael D. Topal (126), Protein-DNA Recognition, Genomic Instability
Cyrus Vaziri, Regulation of DNA Replication and S-phase Checkpoints
Elizabeth M. Wilson (134), Mechanisms of Steroid Hormone Action, Androgen Regulation of Gene Transcription
Yue Xiong (140), Molecular Mechanisms of Cell Cycle Control, Tumor Suppression and Development

Associate Professors

Wolfgang Bergmeier, Adhesion Mechanisms of Platelets and Neutrophils
Xian Chen (12), Protein-Protein and Protein-Ligand Interaction, Protein Tertiary Structure, Quaternary Structure of Multi-Protein Complexes, Structure-Function Relationship of Proteins, Functional Proteomics
Scott Singleton (116), Bio-Organic and Biophysical Chemical Investigations of the Mechanisms DNA Repair, Directed Evolution of Novel Enzymes, Development of Alternate Strategies for Targeting Drug-Resistant Pathogenic Microorganisms
Qi Zhang, Molecular basis of RNA function

Assistant Professors

Jill Dowen, Three-dimensional Genome Architecture and Gene Regulation
Gaorav Gupta, Genome Integrity Pathways and Breast Cancer Initiation, Progression, and Response to Therapy
Pengda Liu, Cell signaling; Cancer; mTOR; Akt; Post-translational Modification; Protein-protein Interaction
Rob McGinty, Mechanisms of Epigenetic Signaling
Saskia Neher, Lipase Structure and Function, Membrane Proteins, Molecular Chaperones
Gang Greg Wang, Cancer Epigenetics; Chemical Modifications of Histones

Professors Emeriti

Michael Caplow
Stephen G. Chaney
Ann Erickson
Howard Fried
David J. Holbrook Jr.
Barry R. Lentz
John Riordan
Gwendolyn B. Sancar
Arrel Toews
Thomas W. Traut
Richard Wolfenden

BIOC

Advanced Undergraduate and Graduate-level Courses

BIOC 442. Biochemical Toxicology. 3 Credits.
Required preparation, one course in biochemistry. Biochemical actions of toxicants and assessment of cellular damage by biochemical measurements. Three lecture hours per week.
Requisites: Prerequisite, CHEM 430; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: ENVR 442, TOXC 442.

BIOC 601. Enzyme Properties, Mechanisms, and Regulation. 3 Credits.
Focuses on enzyme architecture to illustrate how the shapes of enzymes are designed to optimize the catalytic step and become allosterically modified to regulate the rate of catalysis.
Requisites: Prerequisite, CHEM 430; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOC 631. Advanced Molecular Biology I. 3 Credits.
Required preparation for undergraduates, at least one undergraduate course in both biochemistry and genetics. DNA structure, function, and interactions in prokaryotic and eukaryotic systems, including chromosome structure, replication, recombination, repair, and genome fluidity. Three lecture hours a week.
Grading status: Letter grade
Same as: GNET 631, BIOL 631, MCRO 631.

BIOC 632. Advanced Molecular Biology II. 3 Credits.
Required preparation for undergraduates, at least one undergraduate course in both biochemistry and genetics. The purpose of this course is to provide historical, basic, and current information about the flow and regulation of genetic information from DNA to RNA in a variety of biological systems. Three lecture hours a week.
Grading status: Letter grade
Same as: GNET 632, BIOL 632, MCRO 632.

BIOC 643. Cell Structure, Function, and Growth Control I. 3 Credits.
Comprehensive introduction to cell structure, function, and transformation.
Requisites: Prerequisite, undergraduate cell biology or biochemistry or permission of the instructor.
Grading status: Letter grade
Same as: CBIO 643, PHCO 643, PHYI 643.

BIOC 649. Mathematics and Macromolecules. 1.5 Credit.
This course focuses on the application of mathematics to topics important in biophysics, such as thermodynamics and electrostatics. The unit is designed to help students perform more efficiently in BIOC 650, 651, and 652.
Grading status: Letter grade.

BIOC 650. Basic Principles: From Basic Models to Collections of Macromolecules. 1.5 Credit.
Required preparation, two semesters of physical chemistry or permission of the instructor. Basic molecular models and their use in developing statistical descriptions of macromolecular function. Course intended primarily for graduate students.
Requisites: Prerequisite, CHEM 430.
Grading status: Letter grade.

BIOC 651. Macromolecular Equilibria: Conformation Change and Binding. 1.5 Credit.
Required preparation, two semesters of physical chemistry or permission of the instructor. Macromolecules as viewed with modern computational methods. Course intended primarily for graduate students.
Requisites: Prerequisite, CHEM 430.
Grading status: Letter grade.

BIOC 652. Macromolecular Equilibria. 1.5 Credit.
Required preparation, two semesters of physical chemistry or permission of the instructor. Stability of macromolecules and their complexes with other molecules. Course intended primarily for graduate students.
Requisites: Prerequisite, CHEM 430.
Grading status: Letter grade.

BIOC 655. Case Studies in Structural Molecular Biology. 3 Credits.
Principles of macromolecular structure and function with emphasis on proteins, molecular assemblies, enzyme mechanisms, and ATP enzymology.
Requisites: Prerequisite, CHEM 430; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOC 660. Introduction to Light Microscopy. 1 Credit.
Fundamentals of optics and light microscope design for the novice student.
Requisites: Prerequisites, BIOC 650, 651, and 652 or permission of the course director.
Grading status: Letter grade.

BIOC 662. Macromolecular Interactions. 1 Credit.
Theory and practice of biophysical methods used in the study of interactions between macromolecules and their ligands, including surface plasmon resonance, analytical ultracentrifugation, and calorimetry.
Requisites: Prerequisites, BIOC 650, 651, and 652; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOC 663A. Macromolecular NMR. 1 Credit.
Principles and practice of nuclear magnetic resonance spectroscopy: applications to biological macromolecule structure and dynamics in solution. Course intended primarily for graduate students.
Requisites: Prerequisites, BIOC 650, 651, and 652; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOC 663B. Macromolecular NMR Practice. 1 Credit.
Lab section for BIOC 663A. Course intended primarily for graduate students.
Requisites: Prerequisite, BIOC 664; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOC 664. Macromolecular Spectroscopy. 1 Credit.
Required preparation, two semesters of physical chemistry or permission of the instructor. Principles of UV, IR, Raman, fluorescence, and spin resonance spectroscopies; applications to the study of macromolecules and membranes. Course intended primarily for graduate students.
Requisites: Prerequisite, CHEM 430.
Grading status: Letter grade.

BIOC 665. Advanced NMR Spectroscopy Course. 1 Credit.
Advanced NMR Spectroscopy
Grading status: Pass/Fail.

BIOC 666. X Ray Crystallography of Macromolecules. 1 Credit.
Principles of protein crystallography, characterization of crystals, theory of diffraction, phasing of macromolecular crystals and structure refinement. Course intended primarily for graduate students.
Requisites: Prerequisites, BIOC 650, 651, and 652; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOC 667. Macromolecular Crystallographic Methods. 2 Credits.
A combined lecture/laboratory workshop for serious students of protein crystallography. Course intended primarily for graduate students.
Requisites: Prerequisite, BIOC 666; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOC 668. Principles of and Simulation of Macromolecular Dynamics. 1 Credit.
A combined lecture/computer lab treatment of the principles of macromolecular dynamics and structure as approached using the tools of molecular dynamics simulations. Course intended primarily for graduate students.
Requisites: Prerequisites, BIOC 650, 651, and 652; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOC 670. Biomolecular Informatics. 1 Credit.
A combined lecture/computer lab course introducing the methods and principles of biological data management as this relates to macromolecular sequence analysis. Course intended primarily for graduate students.
Requisites: Prerequisites, BIOC 650, 651, and 652; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOC 671. Summer Research in Biophysics. 3 Credits.
This class is a 10-week summer course in biophysics.
Grading status: Letter grade.

BIOC 673. Proteomics, Protein Identification and Characterization by Mass Spectrometry. 1 Credit.
A lecture module that introduces students to mass spectrometry-based proteomics in new biology discovery and precision medicine. Course intended primarily for graduate students.
Requisites: Prerequisites, BIOC 650, 651, and 652, or one semester of physical chemistry; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOC 674. Ion Channels Transporters. 1 Credit.
Ion Channels Transporters
Grading status: Pass/Fail.

BIOC 678. Electrical Signals from Macromolecular Assemblages. 2 Credits.
An intensive, six-hour per week introduction to the fundamentals of ion channel biophysics, including laboratory sessions to demonstrate principles and methods. Course intended primarily for graduate students.
Requisites: Prerequisites, BIOC 650, 651, and 652; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

Graduate-level Courses

The following seminar courses are designed for students majoring or minoring in biochemistry who wish to further their knowledge in particular areas. Unless otherwise stated, two semesters of biochemistry are prerequisites for seminar courses. Most of these courses are given in alternate years by interested staff members. Unless otherwise stated, these seminars may not be repeated for credit. Seminar courses provide teaching experience, which is required for a graduate degree in biochemistry and biophysics. In addition, the courses provide experience in giving a critical review of the current literature.

BIOC 700. Origins and Early Evolution of Life. 2 Credits.
Critical reading and discussion in the origins of, metabolism, inheritance, and natural selection, and biological complexity
Grading status: Letter grade.

BIOC 701. Critical Analysis in Biochemistry. 2 Credits.
Permission of the instructor. Critical analysis of research papers from departmental seminar series, student presentations, meet seminar speakers, learn about departmental research and current techniques.
Grading status: Letter grade.

BIOC 702. Advanced Biochemistry Laboratory. 2-4 Credits.
Permission of the department for nonmajors. Designed to introduce the student to research methods. Minor investigative problems are conducted with advice and guidance of the staff. May be repeated for credit.
Requisites: Prerequisite, CHEM 430.
Grading status: Letter grade.

BIOC 703. Advanced Biochemistry Laboratory. 2-4 Credits.
Permission of the department for nonmajors. Designed to introduce the student to research methods. Minor investigative problems are conducted with advice and guidance of the staff. May be repeated for credit.
Requisites: Prerequisite, CHEM 430.
Grading status: Letter grade.

BIOC 704. Seminars in Biophysics. 2 Credits.
Permission of the instructor. Students present seminars coordinated with the visiting lecturer series of the Program in Molecular and Cellular Biophysics.
Grading status: Letter grade
Same as: BIOL 704.

BIOC 705. Advanced Biophysics Laboratory. 2-4 Credits.
Permission of the program director. Designed to introduce students in the Molecular and Cellular Biophysics Program to research methods. Minor investigative projects are conducted with advice and guidance of the staff. May be repeated for credit.
Grading status: Letter grade.

BIOC 706. Biochemistry of Human Disease. 3 Credits.
Required preparation, biochemistry. Permission of the instructor. Graduate level, involves lectures, critical readings, and discussions of biochemical aspects of human diseases. Core biochemical principles and cutting edge approaches are considered in the following: amyotrophic lateral sclerosis, Alzheimer's, cancer, cystic fibrosis, HIV, thrombosis and heart disease, schizophrenia, V(D)J recombination, and neglected diseases.
Grading status: Letter grade.

BIOC 707. Cellular Metabolism and Human Disease. 2 Credits.
Open to 1st year BBSP or advanced graduate students with background in basic cellular biochemistry. Permission of the instructor. Addresses the role of cellular metabolism in human disease, including the roles and regulation of biochemical pathways. Recent advances will be emphasized. Diseases addressed will include cancer and diabetes.
Grading status: Letter grade.

BIOC 711. Research Concepts in Biochemistry. 2 Credits.
Master's candidates in biochemistry and biophysics only. A series of lectures and exercises on formulating a research plan to attack a specific scientific problem, and on presenting the research plan in the form of a grant proposal.
Grading status: Letter grade.

BIOC 712. Scientific Writing. 3 Credits.
Doctoral candidates in biochemistry and biophysics only. A course of lectures and workshops on the principles of clear scientific exposition with emphasis on the design and preparation of research grants.
Grading status: Letter grade.

BIOC 715. Scientific Presentation. 1 Credit.
Senior graduate students present original research results as a formal seminar. Feedback on presentation effectiveness and style will be provided by faculty instructors and classmates.
Grading status: Letter grade.

BIOC 720. The Biochemistry of HIV Replication, Inhibitors, and Drug Resistance. 2 Credits.
Seminar/discussion/literature course on structure-function of HIV proteins. Discussion of polymerases, proteases, protein-protein interactions, protein degradation pathways, protein-nucleic acid recognition, transcriptional control, RNA splicing and transport, and mechanisms of drug resistance.
Grading status: Letter grade.

BIOC 721. Cell Regulation by Ubiquitination. 2 Credits.
Required preparation, two semesters of biochemistry. Lecture and literature-based discussion course on ubiquitin-mediated regulation of hormone receptor signaling, trafficking, and degradation.
Grading status: Letter grade.

BIOC 722A. Cellular and Molecular Neurobiology: Introduction and Electrical Signaling. 2 Credits.
Permission of the department. This course explores the experimental and theoretical function of the nervous system. Typically, the first hour is fundamental material presentation and the second hour may be a presentation led by the students. Topics covered include: cellular diversity in the CNS, gross brain anatomy, human and rodent brain imaging, neuromolecular genetics, behavioral methods, membrane potentials/resistance/capacitance, ion channel structure, electrophysiology and propagation of electrical signals in neurons. Basic undergraduate biology, chemistry, physics and intro calculus is assumed.
Grading status: Letter grade
Same as: NBIO 722A, PHCO 722A.

BIOC 722B. Cellular and Molecular Neurobiology: Postsynaptic Mechanisms-Receptors. 2 Credits.
Permission of the department. Consideration of membrane receptor molecules activated by neurotransmitters in the nervous system with emphasis on ligand binding behavior and molecular and functional properties of different classes of receptors. Course meets for four weeks with six lecture hours per week.
Grading status: Letter grade
Same as: NBIO 722B, PHCO 722B.

BIOC 725. Signal Transduction. 2 Credits.
Seminar/discussion course on molecular aspects of the receptors, G-proteins, effector proteins, kinases, and phosphatases that mediate hormone, neurotransmitter, growth factor, and sensory signaling.
Grading status: Letter grade
Same as: PHCO 725.

BIOC 738. Nanomedicine. 3 Credits.
This course offers an introduction to the interdisciplinary field of nanomedicine for students with a physical, chemical, or biological sciences background. This course will emphasize emerging nanotechnologies and biomedical applications including nanomaterials, nanoengineering, nanotechnology-based drug delivery systems, nano-based imaging and diagnostic systems, nanotoxicology, and translating nanomedicines into clinical investigation.
Grading status: Letter grade.

BIOC 740. Contemporary Topics in Cell Signaling: Phosphorylation Control. 1 Credit.
Required preparation, coursework in biochemistry, pharmacology, and/or cell & molecular biology. Permission of the instructor. This graduate-level course is an in-depth analysis of how protein kinases and protein phosphorylation regulates key aspects of cell signaling. This class is one of the "Contemporary Topics in Cell Signaling" modules.
Grading status: Letter grade.

BIOC 741. Contemporary Topics in Cell Signaling: GTPases. 1 Credit.
Required preparation, coursework in biochemistry, pharmacology, and/or cell & molecular biology. Permission of the instructor. This graduate-level course conveys principles of signal transduction controlled by GTPases and emphasizes in-depth discussion of current literature and unanswered questions. This class is one of the "Contemporary Topics in Cell Signaling" modules.
Grading status: Letter grade.

BIOC 742. Contemporary Topics in Cell Signaling: Cell Cycle Control. 1 Credit.
Permission of the instructor. Required preparation, coursework in biochemistry and/or cell & molecular biology. This graduate-level course conveys principles of eukaryotic cell proliferation control emphasizing in-depth discussion of current literature and unanswered questions. This class is one of the Contemporary Topics in Cell Signaling modules.
Grading status: Letter grade.

BIOC 743. Contemporary Topics in Cell Signaling: Signaling Networks. 1 Credit.
Acquire the scientific vocabulary of the signaling network field. Master key concepts from mathematical characterization of signaling circuits. Develop and apply critical analysis skills.
Grading status: Letter grade
Same as: PHCO 743.

BIOC 744. Topics on Stem Cells and Development. 2 Credits.
Required preparation, coursework in genetics, cell biology, and molecular biology. Permission of the instructor. Course addresses key issues in developmental biology focused on the role of stem cells and emphasizes in-depth discussion of current literature and unanswered questions. One of the Contemporary Topics in Cell Signaling modules.
Grading status: Letter grade
Same as: PHCO 744.

BIOC 802. Seminar in the Phase Problem in X-Ray Crystallography. 2 Credits.
Permission of the instructor. Image formation is treated from a quite general point of view, drawing from Fourier transform methods used in X-ray crystallography. Isomorphous replacement, multiple wavelength anomalous scattering, and Bayesian direct methods are covered. One two-hour seminar a week.
Grading status: Letter grade.

BIOC 803. Seminar on Cell Signaling. 2 Credits.
Required preparation, two semesters of biochemistry. Signal transduction in embryonic development.
Grading status: Letter grade.

BIOC 804. Seminar in DNA-Protein Interactions. 2 Credits.
Required preparation, two semesters of biochemistry. Review of current literature on structural, thermodynamic, and kinetic aspects of binding to DNA of proteins involved in replication, regulation, recombination, and repair.
Grading status: Letter grade.

BIOC 805. Molecular Modeling. 3 Credits.
Introduction to computer-assisted molecular design, techniques, and theory with an emphasis on the practical use of molecular mechanics and quantum mechanics programs.
Requisites: Prerequisites, MATH 231, 232, and CHEM 481.
Grading status: Letter grade
Same as: CBMC 805.

BIOC 806. Macromolecular Modeling. 3 Credits.
Introduction to modeling and simulation techniques for biological macromolecules. Two lecture and three to four laboratory hours per week.
Requisites: Prerequisites, MATH 231, 232, and CHEM 430.
Grading status: Letter grade
Same as: MEDC 806.

BIOC 807. Seminar in Cellular Responses to DNA Damage. 2 Credits.
Required preparation, graduate-level courses (one each) in molecular biology and biochemistry. A seminar course on the enzymology of DNA repair and damage tolerance and the regulation of genes involved in these processes. Both classic and recent literature are discussed.
Grading status: Letter grade.

BIOC 808. From Force to Phenotype: How Biological Structures Respond to Physical Force. 2 Credits.
Literature/discussion course on integrating physics with biology, and the challenge of merging structural dynamics with living cell phenotypes. Forces and biological outcomes will be considered through specific examples.
Grading status: Letter grade.

BIOC 888. Responsible Conduct of Research. 1 Credit.
Classroom-based graduate level course covering critical topics for ethical and responsible conduct of experimental research. There are both classroom lecture, workshop-type discussion components, in addition to assigned outside of class readings. Case studies and hypothetical situations involving the most likely scenarios confronting graduate students will be covered, these topics include: mentor and mentee relationships, publication authorship, collaboration, peer review, conflicts of interest, intellectual property, plagiarism, data acquisition and data processing. Restricted to students in good standing as a graduate student at UNC; In the unlikely event that classroom space is limited, preference will be given to graduate students who have previously received external federal funding sources and may require a refresher course in RCR.
Repeat rules: May be repeated for credit. 2 total credits. 1 total completions.
Grading status: Letter grade
Same as: BCB 888.

BIOC 901. Research in Biochemistry. 3-9 Credits.
Permission of the department.
Grading status: Letter grade.

BIOC 902. Research in Biochemistry. 1-21 Credits.
Permission of the department. Six or more hours a week throughout both semesters.
Grading status: Letter grade.

BIOC 992. Master's (Non-Thesis). 3 Credits.

BIOC 994. Doctoral Research and Dissertation. 3 Credits.

CURRICULUM IN BIOINFORMATICS AND COMPUTATIONAL BIOLOGY (GRAD)

Contact Information

Curriculum in Bioinformatics and Computational Biology
Visit Program Website (http://bcb.unc.edu)

Timothy Elston, Director

William Valdar, Associate Director

Modern biology, in this postgenome age, is being greatly enriched by an infusion of ideas from a variety of computational fields, including computer science, information science, mathematics, operations research, and statistics. In turn, biological problems are motivating innovations in these computational sciences. There is a high demand for scientists who can bridge these disciplines. The goal of the Curriculum in Bioinformatics and Computational Biology (BCB) is to train such scientists through a rigorous and balanced curriculum that transcends traditional departmental boundaries.

Incoming students are expected to matriculate from a broad range of disciplines; thus, it is important to ensure that all students have a common foundation on which to build their BCB training. The first year is dedicated to establishing this foundation and training all students with a common set of core BCB courses. BCB students will also participate in three laboratory research rotations their first year and ultimately join a laboratory at the end of those rotations. Research work is done in the laboratory facilities of the individual faculty member and is supported primarily by faculty research grants.

Curriculum faculty have appointments in 18 departments in the School of Medicine, School of Dentistry, Gillings School of Global Public Health, Eshelman School of Pharmacy, School of Information and Library Science, and the College of Arts and Sciences. This level of diversity allows students a broad range of research opportunities.

Requirements for Admission for Graduate Work

Ideal BCB candidates should have an undergraduate degree in a biological, physical, mathematical, or computational science. They must apply to the program through a unified application program known as the Biological and Biomedical Sciences Program (BBSP). Students apply for graduate study in the biological or biomedical sciences at UNC–Chapel Hill. Students interested in any of the BBSP research areas apply to BBSP, and those whose application portfolio places them highest on the admission list are asked to visit Chapel Hill for interviews. Students who are ultimately admitted to UNC–Chapel Hill make no formal commitment to a Ph.D. program. After completing their first year of study students leave BBSP, join a thesis laboratory, and matriculate into one of 14 participating Ph.D. programs. During their first year BBSP students are part of small, interest-based groups led by several faculty members. These groups meet frequently and provide a research community for students until they join a degree-granting program. Students are encouraged to apply as early as possible, preferably before December 1. (Applicants seeking a master's degree are not considered for admission.)

Financial Aid

Stipends for predoctoral students are available from an NIH predoctoral training grant and from the University. Tuition, student fees, and graduate student health insurance are also covered by the training grant and the University.

In addition to the dissertation requirements of The Graduate School (four full semesters of credit including at least six hours of doctoral dissertation, a written preliminary examination, an oral examination and a dissertation), students in the Curriculum in Bioinformatics and Computational Biology must meet the following requirements:

- complete all five of the BCB core courses
- complete twelve hours of elective courses (as determined by student and thesis advisor)
- participate in the BCB Colloquium as attendees during the first and second years and as presenters in later years
- act as teaching assistants for one of the BCB modules
- attend BCB sponsored seminars
- attend the BCB annual retreat
- participate in the yearly BCB mini-symposium

Students are required to rotate through at least three laboratories before choosing a thesis advisor. The advisor or co-advisor must be from BCB Core Faculty list. It is strongly recommended that students attend national meetings in order to better understand how their research fits with progress in their field.

Professors

Jim Bear, Cell Biology and Physiology
Kerry Bloom, Mechanisms of Chromosome Segregation in Yeast; Chromosome and Spindle Dynamics
Charles Carter, Protein Crystallography, Structural Polymorphism and Function
Jeff Dangl, Plant Genetics and Cellular Biology, Plant Disease Resistance and Cell Death Control
Ian Davis, Epigenomic and transcriptomic consequences of genetic alterations in cancer and applications to therapeutic discovery.
Henrik Dohlman, Regulators of G Protein Signaling
Nikolay Dokholyan, Protein Folding, Design, and Evolution
Timothy Elston, Mathematical Modeling of Biological Networks
Gregory Forest, Mathematical Modeling of Mucociliary Transport Processes
Klaus Hahn, Spatio-Temporal Dynamics of Signaling in Living Cells
Brian Kuhlman, Protein Design/Modeling, Protein Interactions
Yufeng Liu, Statistical Learning and Genomic Analysis
Terry Magnuson, Mammalian Genetics/Genomics/Development/Mouse Models of Human Disease
Steve Marron, Analyzing Data That Lie in Nonstandard Spaces
William Marzluff, Regulation of RNA Metabolism in Animal Cells
Karen Mohlke, Complex Traits, Genetics of Type 2 Diabetes
Peter Mucha, Networks, Complex Systems, Interacting Particle Systems, Computational Social Science
Fernando Pardo-Manuel de Villena, Evolution, Mouse Genetics, Epigenetics, Female Meiosis, Chromosome Segregation, Meiotic Drive
Charles Perou, Genomic and Molecular Classification of Human Tumors to Guide Therapy

Jan Prins, High-Performance Computing, Algorithms, Programming Languages, Scientific Computing
Maria Servedio, Mathematical Models Integrating Evolutionary Theories with Behavioral and Ecological Phenomena
Jack Snoeyink, Discrete and Computational Geometry Applications to Molecular Biology
John Sondek, Structural Biology of Signal Transduction
Brian Strahl, The Role That Histone Post-Translational Modifications Have in Chromatin Biology
Alex Tropsha, Computational Analysis of Protein Structure and Drug Design
Kevin Weeks, Structural and Chemical Biology of the Transcriptome
Kirk Wilhelmsen, Genetic Mapping of Susceptibility Loci for Complex Neurological Diseases

Associate Professors

Terry Furey, Chromatin and Gene Regulation, Cancer Genomics, High-Throughput Sequencing
Amy Gladfelter, Cell Cycle Control, Cytokinesis, and Cell Shape Determination From Fungi to Mammals
Shawn Gomez, Systems Biology, Mathematical Modeling of Protein Interaction Networks
Bradley Hemminger, Bioinformatics, Medical Informatics, User Interface Design
Corbin Jones, Evolution and Underlying Genetics of Species-Specific Adaptations
Yun Li, The Development of Statistical Methods and Their Application to the Genetic Dissection of Complex Diseases and Traits
Leonard McMillan, Computer Science
Laura Miller, Mathematical Biology, Computational Fluid Dynamics, Biomechanics
C. Ryan Miller, Development of Novel Mouse Models of Brain Cancers and Their Comparative Epigenomic, Genomic, Transcriptomic, and Proteomic Characterization Relative to Human Tumors
Joel Parker, The Methodological Development and Integrated Analysis of High-Throughput Genetic and Genomic Studies of Cancer
Shehzad Sheikh, How Information is Encoded and Dynamically Utilized in Immune Cells From Healthy and Disease-Prone Intestines (Crohn's Disease and Ulcerative Colitis)
William Valdar, Mapping of Complex Disease Loci in Animal Models, Statistical Genetics
Todd Vision, Evolution of Genome Organization, Architecture of Complex Traits
Mark Zylka, Use of Genome-Wide Approaches to Study Transcriptional Regulators Linked to Autism, Use of RNA Sequencing and Targeted Sequencing to Identify Chemical Risk Factors for Brain Disorders (Autism, Brain Aging, Neurodegeneration, ADHD), Transcriptional Mechanisms Associated with Long Genes

Assistant Professors

J. Mauro Calabrese, Sequence Rules to Predict Long Noncoding RNA Function, Mechanisms of Transcriptional Regulation by Long Noncoding RNAs
Daniel Dominguez, How Gene Expression is Controlled by Proteins That Bind RNA
Jill Dowen, Integrates the Areas of Transcriptional Regulation, Three-Dimensional Genome Organization and Functional Genomics to Understand How the Architecture of the Genome Influences Gene Expression During Development and Disease
Marty Ferris, Genetics
Hector Franco, Gene Regulation, Epigenetics, Chromatin and RNA Biology, Especially As It Pertains to Cancer
Flavio Frohlich, Cortical Neurophysiology, Computational Neuroscience, Brain Stimulation, Epilepsy
Boyce Griffith, Mathematical Modeling and Computer Simulation in Physiology, Especially Cardiovascular Mechanics, Fluid Dynamics, and Fluid-Structure Interaction and Cardiac Electrophysiology
Katherine Hoadley, Genomic Characterization and Integrative Genomic Approaches to Better Understand Cancer
Yuchao Jiang, Statistical Modeling, Method Development and Data Analysis in Genetics and Genomics
Samir Kelada, The Identification of Gene-Environment Interaction in Allergic Asthma
Alain Laederach, RNA Folding Bioinformatics
Wesley Legant, Microscopy, 3d Image Analysis, Biomaterials, Cell Migration, Cancer Metastasis, Tissue Engineering
Mike Love, Statistical and Computational Methods For the Analysis of High-Throughput Sequencing Assays to Facilitate Biomedical and Biological Research
Amy Shaub Maddox, the Mechanisms of Cell Shape Change
Ben Major, Computational Proteomics and Mass Spectrometry. Network Structure and Dynamics of Protein-Protein Interactions, Multi-Omic Integrations Focused on Signal Transduction in Cancer Initiation and Evolution
Adrian Marchetti, Ecophysiology, Biogeochemistry and Genomics of Marine Phytoplankton
Dan Mckay, Developmental Genomics, Regulation of Gene Expression
Ehssan Nazockdast, Applied Physical Science
Doug Phanstiel, Experimental and Computational Approaches to Study the Mechanisms Through Which Enhancers and Three-Dimensional Chromatin Structure Regulate Gene Transcription During Cellular Differentiation
Jeremy Purvis, Signal Transduction in Cancer and Stem Cells
Daniel Schrider, Computational Tools to Make Inferences About Evolution From Population Genomic Datasets
Jason Stein, Finding and Modeling Genetic Variants Influencing Human Brain Structure and Function
Benjamin Vincent, How Immunogenomics Features Including T-Cell Receptor and B-Cell Receptor Repertoire Characteristics Predict Survival and Response to Immunotherapy in Breast Cancer, Bladder Cancer, and Acute Myeloid Leukemia
Hyejung Won, We Try to Bridge the Gap Between Genetic Risk Factors for Psychiatric Illnesses and Neurobiological Mechanisms by Decoding the Regulatory Relationships in the Human Brain
Di Wu, Development of Statistical Methods for Multidimensional Genomic Data Integration to Understand the Biological Mechanism of Diseases
Anthony Zannas, The Epigenetic Mechanisms Linking Psychosocial Stress With Disease Risk

BCB

Graduate-level Courses

BCB 701. Genome Sciences Seminar Series. 1 Credit.
Open to bioinformatics students only. Diverse but current topics in all aspects of bioinformatics. Relates new techniques and current research of notables in the field of bioinformatics and computational biology.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BCB 702. Genome Sciences Seminar Series. 1 Credit.
Open to bioinformatics students only. Diverse but current topics in all aspects of bioinformatics. Relates new techniques and current research of notables in the field of bioinformatics.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BCB 710. Bioinformatics Colloquium. 1 Credit.
The goal of this course is to expose students to the research interests of BCB faculty and to provide an opportunity for students to present their own work and receive input from their peers and faculty.
Grading status: Letter grade.

BCB 712. Databases, Metadata, Ontologies, and Digital Libraries for Biological Sciences. 1 Credit.
Course introduces the basic information-science methods for storage and retrieval of biological information.
Grading status: Letter grade.

BCB 715. Mathematical and Computational Approaches to Modeling Signaling and Regulatory Pathways. 1 Credit.
The course provides an introduction to the basic mathematical techniques used to develop and analyze models of biochemical networks. Both deterministic and stochastic models are discussed.
Grading status: Letter grade.

BCB 716. Sequence Analysis. 1 Credit.
Course designed to introduce students to the computational analysis of nucleic acids sequences, including sequence comparison, alignment, and assembly.
Grading status: Letter grade.

BCB 717. Structural Bioinformatics. 1 Credit.
Course introduces methods and techniques for protein modeling.
Grading status: Letter grade.

BCB 718. Computational Modeling Laboratory. 1 Credit.
This course provides a practical introduction to computational modeling of cellular systems. We will focus on how to choose and implement different modeling techniques-deterministic, stochastic, and inferred-to describe the same biological phenomenon. Although no formal mathematical or computational background is required, the course will involve a fair amount of programming in MATLAB.
Grading status: Letter grade.

BCB 720. Introduction to Statistical Modeling. 3 Credits.
This course introduces foundational statistical concepts and models that motivate a wide range of analytic methods in bioinformatics, statistical genetics, statistical genomics, and related fields. Students are expected to know single-variable calculus, be familiar with matrix algebra, and have some programming experience.
Grading status: Letter grade.

BCB 722. Population Genetic Methods for Estimating Natural Selection. 1 Credit.
This short course will cover methods of inferring/estimating natural selection, including the Dn/Ds ratio, the McDonald-Kreitman test, and the Poisson Random Field model. The course will feature discussions of high-profile publications that describe the application of these methods to yield insights into the forces that have shaped organismal evolution.
Grading status: Letter grade.

BCB 723. Topics in Statistical Genetics and Genomics. 1 Credit.
This module introduces selected concepts and techniques in statistical genetics and genomics.
Grading status: Letter grade.

BCB 725. Introduction to Statistical Genetics. 3 Credits.
Covers statistical methods for the analysis of family and population-based genetic data. Topics include classical linkage analysis, population-based and family-based association analysis, haplotype analysis, genome-wide association studies, basic principles in population genetics, imputation-based analysis, pathway-based analysis, admixture mapping, analysis of copy number variations, and analysis of massively parallel sequencing data.
Grading status: Letter grade.

BCB 730. Fundamentals of Quantitative Image Analysis for Light Microscopy. 1 Credit.
This course is a practical introduction to quantitative analysis of light microscopy images. During the class students will follow tutorials that will guide them through common tasks in analysis of biological images. They will be introduced to basic concepts of image processing like image registration, filtering, object detection etc.
Grading status: Letter grade
Same as: GNET 730.

BCB 785. Statistical Methods for Gene Expression Analysis. 3 Credits.
Clustering algorithms, classification techniques, statistical techniques for analyzing multivariate data, analysis of high dimensional data, parametric and semiparametric models for DNA microarray data, measurement error models, Bayesian methods, statistical software, sample size determination in microarray studies, applications to cancer.
Requisites: Prerequisites, BIOS 661 or 673, and 663; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: BIOS 785.

BCB 850. Training in Bioinformatics and Computational Biology Teaching. 3 Credits.
Principles of bioinformatic and computational biology pedagogy. Students are responsible for assistance in teaching BCB and work under the supervision of the faculty, with whom they have regular discussion of methods, content, and evaluation of performance.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BCB 888. Responsible Conduct of Research. 1 Credit.
Classroom-based graduate level course covering critical topics for ethical and responsible conduct of experimental research. There are both classroom lecture, workshop-type discussion components, in addition to assigned outside of class readings. Case studies and hypothetical situations involving the most likely scenarios confronting graduate students will be covered, these topics include: mentor and mentee relationships, publication authorship, collaboration, peer review, conflicts of interest, intellectual property, plagiarism, data acquisition and data processing. Restricted to students in good standing as a graduate student at UNC; In the unlikely event that classroom space is limited, preference will be given to graduate students who have previously received external federal funding sources and may require a refresher course in RCR.
Repeat rules: May be repeated for credit. 2 total credits. 1 total completions.
Grading status: Letter grade
Same as: BIOC 888.

BCB 891. Special Topics. 1-3 Credits.
Advance topics in current research in statistics and operations research.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade
Same as: MATH 891, GNET 891.

BCB 899. Special Topics in Bioinformatics and Computational Biology. 1-6 Credits.
Special topics course in the Bioinformatics and Computational Biology Curriculum. Topics will vary.
Repeat rules: May be repeated for credit. 9 total credits. 9 total completions.
Grading status: Letter grade.

BCB 905. Research in Bioinformatics and Computational Biology. 1-8 Credits.
Credit awarded to students for research in bioinformatics and computational biology.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BCB 993. Master's Research and Thesis. 3 Credits.
Students are not accepted for master's program.
Repeat rules: May be repeated for credit.

BCB 994. Doctoral Research and Dissertation. 3 Credits.
Credit for work done towards doctorate.
Repeat rules: May be repeated for credit.

BIOLOGICAL AND BIOMEDICAL SCIENCES PROGRAM (GRAD)

Contact Information

Biological and Biomedical Sciences Program
Visit Program Website (http://bbsp.unc.edu)

Jean Cook, Director

The Biological and Biomedical Sciences Program (BBSP) of the University of North Carolina at Chapel Hill is an umbrella admissions and first-year program for 14 Ph.D. programs in the School of Medicine, Eshelman School of Pharmacy, Gillings School of Global Public Health, and the College of Arts and Sciences. The following programs are affiliated with the BBSP. Biochemistry and Biophysics, Bioinformatics and Computational Biology, Biology (MCDB Division), Cell Biology and Physiology, Chemistry (Biological Chemistry Division), Genetics and Molecular Biology, Microbiology and Immunology, Neuroscience, Nutrition (Biochemistry Division), Oral Biology, Pathobiology and Translational Science, Pharmaceutical Sciences (Medicinal Chemistry and Molecular Pharmaceutics tracks), Pharmacology, and Toxicology. Students interested in pursuing a Ph.D. in any of these programs apply to the BBSP. For a complete list of faculty in the BBSP see the faculty page (http://bbsp.unc.edu/research/faculty-database) of the program's Web site. See individual program listings for more information about individual Ph.D. programs. These also can be accessed from the BBSP Web site.

Admission Requirements

A bachelor's degree (B.S. or B.A.) is required for admission into the BBSP. Successful applicants have a strong background in the biological sciences, chemistry, physics, or mathematics. Only applicants with both strong academic records and prior research experience are favorably considered. An interview, usually on campus, is required prior to admission.

Financial Assistance

All BBSP students receive an annual stipend ($32,000 in 2019–2020). Tuition, health insurance, and fees are covered by the program.

During their first year, BBSP students are part of small, interest-based groups led by several faculty members. These groups meet weekly and provide a research community for students until they join a degree-granting program. In these groups, students develop professional skills, including scientific writing, original research presentations, responsible conduct of research, and quantitative reasoning. The faculty members in these groups advise students in selecting laboratory rotations and courses that meet their individual interests.

BBSP students choose from more than 400 faculty members as they pursue three required research rotations in the fall and spring semesters of their first year. At the completion of the third rotation, each student selects an academic advisor who will provide guidance for his or her dissertation research training. The student also joins a Ph.D. program that the advisor is affiliated with and completes that program's requirements.

The BBSP does not have a core curriculum or require students to take a particular set of courses beyond BBSP 901 and BBSP 902. Students may take courses offered by any of the participating Ph.D. programs (see individual program listings for available courses). After joining a specific Ph.D. program students must fulfill the specific coursework and other requirements of that program.

BBSP

Graduate-level Courses

BBSP 705. Best Practices for Rigor and Reproducibility in Research. 1 Credit.
A workshop to introduce best practices for increasing rigor and reproducibility in research. Permission of course directors required.
Grading status: Letter grade
Same as: BIOL 705.

BBSP 710. Biostatistics for Laboratory Scientists. 2 Credits.
This course introduces the basic concepts and methods of statistics with emphasis on applications in the experimental biological sciences. Students should have a basic understanding of algebra and arithmetic. No previous background in probability, statistics, or statistical computing is required. Students are required to have GraphPad Prism installed on their laptops and activated before the course begins. You can download GraphPad Prism from UNC software acquisition (software.unc.edu; license required).
Grading status: Letter grade.

BBSP 890. Special Topics in the Biological and Biomedical Sciences Program. 1-3 Credits.
Permission of the instructor. Seminar/Discussion course dealing with advanced topics in the biological and biomedical sciences.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

BBSP 901. Research in Biological and Biomedical Sciences. 0.5-6 Credits.
Enrollment in BBSP program required. Lab rotations with BBSP faculty.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

BBSP 902. Seminar in Biological and Biomedical Sciences. 0.5-4 Credits.
Enrollment in BBSP program required. First Year Group course of small interest-based groups led by faculty advisors. Includes professional skills development in a research community.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BBSP 903B. Research in Biological and Biomedical Sciences - Part II. 1.5 Credit.
Enrollment in BBSP program required. Lab rotations with BBSP faculty. This lab rotation is Part II of a two part lab rotation which spans fall and spring semesters.
Grading status: Letter grade.

BBSP 903A. Research in Biological and Biomedical Sciences - Part I. 1.5 Credit.
Enrollment in BBSP program required. Lab rotations with BBSP faculty. This lab rotation is Part I of a two part lab rotation which spans fall and spring semesters.
Grading status: Letter grade.

DEPARTMENT OF BIOLOGY (GRAD)

Contact Information

Department of Biology
Visit Program Website (http://bio.unc.edu)

Kerry S. Bloom, Chair

With the recommendation of the department and the approval of the Administrative Board of The Graduate School, special courses and the direction of graduate studies are offered by the staff of the Institute of Marine Sciences, Morehead City, North Carolina.

The Department of Biology offers a program of study leading to a doctor of philosophy degree in biology. Master's degrees are generally only received by those students who have progressed far enough in the Ph.D. program but cannot complete the program for various reasons. Special departmental rules and guidelines for advanced degrees are available upon request.

Facilities

The Department of Biology is currently housed in four modern buildings. The newest building, the Genome Sciences Building, opened in July 2012. The department is equipped with modern instrumentation for research and research training in the diverse biological disciplines represented by the faculty.

UNC–Chapel Hill has a world-class library system, including the Health Science Library, which is dedicated to resources related to biological research. A major research asset is the location of the University, which makes the varied flora and fauna of the Appalachian Mountains, Piedmont Plateau, Coastal Plain, and Atlantic Coast accessible for research and instruction. The department operates a small field station a few miles from the Chapel Hill campus in the Mason Farm Biological Reserve, which includes several hundred acres of upland and floodplain habitats.

The Coker Arboretum and the North Carolina Botanical Garden are of value to students in the study of questions in plant biology. The Herbarium, containing more than 600,000 specimens, is especially rich in collections of the vascular plants and fungi of the Carolinas and the Southeastern United States.

The Highlands Biological Station, administered for the University system by Western Carolina University, is located in the biologically rich mountains at Highlands, North Carolina. Graduate courses offered cover various parts of the mountain biota. Credit may be obtained through UNC–Chapel Hill or Western Carolina University. A limited amount of research support is available on a competitive basis. (See the annual announcement of the Highlands Biological Station.)

The University is a member of the Organization for Tropical Studies (OTS). Financial support is available for students attending OTS courses in tropical ecology in Costa Rica.

Additional information about the graduate program including instructions for application is available online (http://bio.unc.edu).

Fellowships and Assistantships

Applicants interested in genetics, molecular biology, cell biology, development, or physiology should apply to the graduate program via the Biology and Biomedical Sciences Program (BBSP (http://bbsp.unc.edu)) application portal. Applicants with an interest in evolutionary biology, ecology, behavior, or organismal biology should apply to the graduate program using UNC's Graduate School application portal (http://gradschool.unc.edu/admissions). Application for admission and graduate appointments, accompanied by credentials and Graduate Record Examination scores, and optionally, by the Advanced Biology score, should be submitted according to The Graduate School deadlines.

All outstanding prospective graduate students who apply for admission are automatically considered for University fellowships.

More than 45 teaching assistantships are open to graduate students. Duties of assistants include preparation for, and supervision of, laboratory and recitation sections of undergraduate courses. Duties usually require 13 to 15 hours per week, including six contact hours in classes and six to nine hours of preparation or other services associated with instruction.

Research assistantships are also available. Salaries and duties are variable as determined by the research needs of faculty supervising the work. Applications for these appointments must be made personally to faculty members directing grant-supported research.

The following awards are specifically for graduate students in the Biology Department:

- The Alma Holland Beers Scholarships are awarded annually to support summer research of students in botany. They are nonservice awards.
- The William Chambers Coker Fellowship is awarded annually to a student or students in the final years of work toward a doctor of philosophy in a botanical field. This is a nonservice award that carries with it an additional supplement for tuition and fees.
- The Mrs. W.C. Coker Fellowship is awarded annually to an outstanding first-year graduate student in plant biology. This is also a nonservice award that carries with it an additional supplement for tuition and fees.
- The H.V. Wilson Marine Scholarship is awarded annually for summer work at a marine laboratory. It is a nonservice award.

The faculty members in the Department of Biology offer instruction and research training in the following diverse biological disciplines.

Genetics and Molecular Biology

Genetics is both a discipline (the study of heredity) and an experimental approach (manipulation of genes or the genetic material). Today, most geneticists work at the molecular level by manipulating RNA, DNA, or entire genomes. Our group is strong in both model organism genetics and genomics. Areas of emphasis include biochemistry and molecular biology, chromosome biology, developmental genetics, genomics, protein synthesis, enzyme mechanics, and plant genetics.

Cell Biology, Development, and Physiology

Developmental biologists address the mechanisms through which cells acquire specialized functions to form complex body plans. These features are accomplished in part through cell proliferation, migration, and shape changes. The department has a strong research program

in these areas, which are major topics in cell biology, as well as in other aspects of developmental biology. Areas of emphasis include cytology, mitotic and meiotic mechanisms, histochemistry, experimental morphogenesis, morphogenetic movements, tissue culture, hormones, plant development, signal transduction, functional morphology, biomechanics and neuroethology, and membrane functions.

Evolutionary Biology

Evolution is inherited change in the characteristics of populations over time. Evolutionary biologists seek to explain the remarkable fit of organisms to their environment (adaptation), the origins of diversity, including the formation of new species (speciation), and the relationships among organisms. The department has a strong focus on the genetic and ecological mechanisms of adaptation and speciation.

Ecology

Ecologists study how organisms interact with other organisms and with their physical environment. UNC–Chapel Hill's group has strength in behavioral, conservation, community, disease, evolutionary, and marine ecology. Areas of emphasis include population biology, life histories, and ecosystem phenomena in diverse systems.

Behavior and Organismal Biology

Organismal biologists seek to understand the diversity of life forms on earth by analyzing organismal structure and function. UNC–Chapel Hill's Department of Biology takes an integrative approach to this research, combining analyses at levels ranging from molecules to whole organisms. The group also endeavors to understand the evolution and mechanisms of behavior. It uses theoretical, observational, and experimental approaches in a variety of species, from crawling behavior in sea slugs to communication in birds. Areas of emphasis include social and mating systems of vertebrates, communication, ecology and ontogeny of behavior, predator-prey interactions, marine ecology and oceanography, comparative physiology, neuroethology, functional morphology, and comparative biomechanics.

Plant Biology

The department has an active and diverse group that studies features specific to plants or that uses plant model systems to address questions of broad interest. Areas of emphasis include host-pathogen interactions, signal transduction, development, genomics, and chromosome biology.

After completing required coursework in the department, students in marine biology have access to the research facilities of the Institute of Marine Sciences, Morehead City, North Carolina. By cooperative arrangements, deep water research can be carried out through the use of the research vessel of the Duke University Marine Laboratory.

Inter-departmental degree programs in genetics, ecology, neurobiology, and marine sciences offer unusual opportunities for special training through participation of staff from the Department of Biology and many other departments in the College of Arts and Sciences and the Division of Health Affairs.

Quantitative Biology

The quantitative biology track of study will develop young scientists who can investigate how basic physical processes have been brought together in living systems. One component of the training program will focus on events at smaller scales, micron-level and below, to cellular, sub-cellular, and multi-cellular processes. Another component will focus on events at larger scales, from the tissue to organ level, to processes at the organism and population level. Despite this distinction for most projects, a central goal of the training will be to prepare students to work on multi-scale problems that connect disparate levels of biology.

This track of study features and fosters extensive interactions among students and faculty. Core training components will be rigorous, but will be combined with the programmatic flexibility as needed to accommodate the training goals of students with diverse backgrounds. Every aspect of the program will encourage innovative, imaginative, and unconventional approaches to physical biology.

Professors

Shawn C. Ahmed, Telomeres, Genomic Change and Germ Cell Immortality
Albert S. Baldwin, Signaling and Gene Expression in Cancer
Victoria L. Bautch, Molecular Basis of Development
Kerry S. Bloom, Chromosome Engineering, Molecular Biophysics
John Bruno, Marine Ecology and Conservation
Christina L. Burch, Experimental Evolution of Viruses
Frank L. Conlon, Xenopus, Mesoderm, Heart, Tbox Genes
Gregory P. Copenhaver, Plant Genome Biology, Recombination, Centromeres
Jeffrey L. Dangl, Genetic and Molecular Analysis of Disease Resistance
Robert J. Duronio, Epigenetics and Cell Cycle Control
Patricia G. Gensel, Paleobotany and Morphology
Robert P. Goldstein, Cellular and Molecular Mechanisms
Albert K. Harris, Morphogenesis and Embryology
Tyson L. Hedrick, Biomechanics and Animal Locomotion
Alan M. Jones, Plant Molecular and Cellular Biology
Corbin D. Jones, Evolutionary Genetics and Genomics
Joseph J. Kieber, Plant Cell Biology
William M. Kier, Functional Morphology of Invertebrates, Biomechanics
Joel G. Kingsolver, Evolutionary Ecology and Physiological Ecology
Kenneth J. Lohmann, Neuroethology and Invertebrate Zoology
A. Gregory Matera, RNA Processing and Epigenetics
Steven W. Matson, Molecular Biology and Biochemistry
Ann G. Matthysse, Molecular Biology and Plant Pathology
Laura A. Miller, Mathematical Biology, Comparative Biomechanics
Charles E. Mitchell, Ecology of Infectious Disease
Mark A. Peifer, Cell Adhesion and Cell-Cell Signaling
Charles H. Peterson, Marine Ecology
David Pfennig, Ecology, Evolutionary Biology, Developmental Biology
Karin S. Pfennig, Ecology, Behavior, and Evolution
Jeff Sekelsky, Meiotic Recombination, DNA Repair
Maria R. Servedio, Evolutionary Theory, Speciation, Sexual Selection
Peter S. White, Plant Ecology

Associate Professors

Sabrina S. Burmeister, Neurobiology and Behavior
Terry Furey, Computational Gene Regulatory Genomics, Crohn's Disease
Amy S. Gladfelter, Cell Biology, Microscopy, Quantitative Biology, Biophysics, Microbiology, Genetics
Allen H. Hurlbert, Community Ecology, Biogeography, Biodiversity
Alain Laederach, Disease-Associated Mutations and Their Effect on RNA Structure
Amy S. Maddox, Mechanisms of Cell Shape Change
Jason W. Reed, Plant Growth and Development
Steven Rogers, Cytoskeletal Dynamics and Mechanosensation
Lillie L. Searles, Gene Expression Control Mechanisms
Elizabeth A. Shank, Microbial Interactions
Kevin Slep, Cytoskeletal Structure and Dynamics

Keith W. Sockman, Reproductive Ecology and Plasticity
Todd J. Vision, Computational Genetics, Genome Evolution, and the Architecture of Complex Traits

Assistant Professors

Bradley Dickerson, The Neuromechanics of Gyroscopic Sensing
Jill M. Dowen, Three-Dimensional Genome Architecture and Gene Regulation
Robert H. Dowen, Molecular Mechanisms of Cellular Homeostasis
Kacy Gordon, Duplicate gene function in the germ line stem cell niche
Toshihide Hige, Neurophysiology and Behavior in *Drosophila*
Paul S. Maddox, Cell Biology of Cell Division
Daniel R. Matute, Evolutionary Genetics
Daniel J. McKay, Developmental Genomics
Zachary L. Nimchuk, Plant Biology, Developmental Genetics
Celia E. Shiau, Neuro-immune Interactions, Macrophage, Vertebrate Development, Genetics and Genomics, in Vivo Imaging
Brian Taylor, Animal Navigation, Nature Inspired Engineering
Caroline M. Tucker, Community Ecology, Quantitative Ecology, Biodiversity

Research Professors

Sarah R. Grant, Genomics of Plant-Pathogen Interactions
Punita Nagpal, Plant Development
Robert K. Peet, Plant Ecology, Plant Geography, Ecoinformatics
Edward D. Salmon, Cell Biology
Darrel W. Stafford, Developmental Biochemistry
Jianke Tie, Protein Biochemistry and Molecular Biology
Michael Werner, Cell Shape Changes and Cortical Dynamics in Cytokinesis
Chris S. Willett, Evolutionary Genetics and Genomics
Elaine Yeh, Nuclear Division in Yeast

Associated Faculty

James T. Costa, Social Behavior, History of Evolutionary Biology
Stephen T. Crews, Molecular Genetics
Frederick Joel Fodrie, Fish and Bivalve Population Ecology
Paul W. Gabrielson, Systematics of Marine Algae
William F. Marzluff, Transcriptional and Posttranscriptional Regulation of RNA Metabolism, Cell Cycle Regulation during Development
Aziz Sancar, DNA Repair and Cancer, Structure and Function of DNA Repair Enzymes, Molecular Neurobiology, Circadian Biology
Bryan Stuart, Biodiversity, Systematics, Conservation and Herpetology
Damon E. Waitt, Professor of the Practice; Plant Evolution and Ecology
Alan Weakley, Plant Systematics
Scott Williams, Cell Division, Developmental Biology, Cell Biology

Universidad San Francisco de Quito Associated Faculty

Paul Cardenas, Pathogenic Microbiology, Molecular Markers, Microbial Genetics
Jaime Chaves, Population Genetics, Sea Turtle Conservation
Juan Guavasamin, Evolutionary Biology, Biogeography
Alex Hearn, Oceanic Islets Role in Pelagic Environment, Sea Turtle Conservation
Antonio Leon-Reyes, Plant Physiology, Plant Immunology, Plant-Microbe Interactions, Plant Biotechnology
Maria de Lourdes Torres, Hybridization Events between Endemic and Invasive Plant Species
Gabriel Trueba, Evolution and Microbiology

Professors Emeriti

Edward G. Barry
Aristotle J. Domnas
J. Alan Feduccia
Max H. Hommersand
Gustavo Maroni
Donald W. Misch
Helmut C. Mueller
Clifford R. Parks
Robert K. Peet
Patricia J. Pukkila
Tom K. Scott
Alan E. Stiven
R. Haven Wiley

BIOL

Advanced Undergraduate and Graduate-level Courses

BIOL 402. Infectious Disease in the Developing World. 3 Credits.
We will explore the challenges of infectious disease in the developing world, focusing on tuberculosis, HIV, and malaria. We will also examine the economics of different approaches to health care.
Requisites: Prerequisites, BIOL 202 and 205.
Grading status: Letter grade.

BIOL 409L. Art and Science: Merging Printmaking and Biology. 1 Credit.
Permission of the instructor. This is the lab component of ARTS 409 that brings together art majors and science majors to combine theory and practical learning in a biology laboratory, which focusing primarily on microscopic life and biological motion, with printmaking. Does not count as an elective towards the biology major.
Requisites: Prerequisite, BIOL 201, BIOL 202, or a 200-level ARTS course; corequisite, ARTS 409.
Grading status: Letter grade.

BIOL 410. Principles and Methods of Teaching Biology. 4 Credits.
This Makerspace designed course will develop the knowledge and skills teachers need to implement inquiry-based biology instruction: rich, conceptual knowledge of biology and mastery of inquiry-based teaching methods. Does not count as a laboratory course.
Requisites: Prerequisites, two of the three biology core courses: BIOL 201, 202, and/or 205.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

BIOL 421L. Microbiology Laboratory with Research. 2 Credits.
Sterile technique, bacterial growth, physiology, genetics and diversity, and bacteriophage. Research in bacterial genetics.
Requisites: Pre- or corequisite, BIOL 422.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

BIOL 422. Microbiology. 3 Credits.
Bacterial form, growth, physiology, genetics, and diversity. Bacterial interactions including symbiosis and pathogenesis (animal and plant). Use of bacteria in biotechnology. Brief introduction to viruses.
Requisites: Prerequisite, BIOL 202; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 422L. Microbiology Laboratory. 1-2 Credits.
Sterile technique, bacterial growth and physiology, bacterial genetics, bacteriophage, and bacterial diversity.
Requisites: Pre- or corequisite, BIOL 422.
Grading status: Letter grade.

BIOL 423. Genetics Experiments. 3 Credits.
This is a Course-based Undergraduate Research Experience (CURE) combination course/lab. Using genetics and genome biology, students will study DNA repair and chromosome stability using yeast as a model system in a cutting edge research laboratory.
Requisites: Prerequisite, BIOL 202; corequisite, BIOL 423L.
Grading status: Letter grade.

BIOL 423L. Genetics Experiments Laboratory. 1 Credit.
This is a Course-based Undergraduate Research Experience (CURE) combination course/lab. Using genetics and genome biology, students will study DNA repair and chromosome stability using yeast as a model system in a cutting edge research laboratory.
Requisites: Prerequisite, BIOL 202; corequisite BIOL 423.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

BIOL 424. Microbial Ecology. 3 Credits.
Class emphasizes the creativity of the scientific process, using primary scientific literature as a framework to discuss topics in microbial ecology, including microbial diversity, distributions, genomics, and co-evolution; host-microbe and microbe-microbe interactions; nutrient cycling; and degradation of plant matter and biofuels.
Requisites: Prerequisites, BIOL 201 and 202; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 425. Human Genetics. 3 Credits.
Pedigree analysis, inheritance of complex traits, DNA damage and repair, human genome organization, DNA fingerprinting, the genes of hereditary diseases, chromosomal aberrations, cancer and oncogenes, immunogenetics and tissue transplants. Three lecture hours a week.
Requisites: Prerequisite, BIOL 202; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 426. Biology of Blood Diseases. 3 Credits.
An introduction to the biology and pathophysiology of blood and the molecular mechanisms of some human diseases: anemias; leukemias; hemorrhagic, thrombotic, and vascular disorders; and HIV disease/AIDS. Honors version available
Requisites: Prerequisite, BIOL 205; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: PATH 426.

BIOL 426H. Biology of Blood Diseases. 3 Credits.
An introduction to the biology and pathophysiology of blood and the molecular mechanisms of some human diseases: anemias; leukemias; hemorrhagic, thrombotic, and vascular disorders; and HIV disease/AIDS.
Requisites: Prerequisite, BIOL 205; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: PATH 426H.

BIOL 427. Human Diversity and Population Genetics. 3 Credits.
Permission of the instructor for students lacking the requisites. Specifically, it addresses questions of human origins, population structure, and genetic diversity. This course investigates the facts, methods, and theories behind human population genetics, evolution, and diversity.
Requisites: Pre- or corequisites, BIOL 201 and 202;
Grading status: Letter grade.

BIOL 430. Introduction to Biological Chemistry. 3 Credits.
The study of cellular processes including catalysts, metabolism, bioenergetics, and biochemical genetics. The structure and function of biological macromolecules involved in these processes is emphasized. Honors version available
Requisites: Prerequisites, BIOL 101, and CHEM 262 or 262H.
Grading status: Letter grade
Same as: CHEM 430.

BIOL 430H. Introduction to Biological Chemistry. 3 Credits.
The study of cellular processes including catalysts, metabolism, bioenergetics, and biochemical genetics. The structure and function of biological macromolecules involved in these processes is emphasized.
Requisites: Prerequisites, BIOL 101, and CHEM 262 or 262H.
Grading status: Letter grade
Same as: CHEM 430H.

BIOL 431. Biological Physics. 3 Credits.
How diffusion, entropy, electrostatics, and hydrophobicity generate order and force in biology. Topics include DNA manipulation, intracellular transport, cell division, molecular motors, single molecule biophysics techniques, nerve impulses, neuroscience.
Requisites: Prerequisites, PHYS 116 and 117, or PHYS 118 and 119.
Grading status: Letter grade
Same as: PHYS 405, BMME 435.

BIOL 434. Molecular Biology. 3 Credits.
Advanced studies in molecular biology from an experimental approach.
Requisites: Prerequisites, BIOL 202 and CHEM 261; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 436. Plant Genetics, Development, and Biotechnology. 3 Credits.
Recent advances in plant molecular biology, genetics, development, and biotechnology, and their potential relevance to agriculture. The course will include lectures, reading and discussions of papers from the primary literature, and student presentations. Honors version available
Requisites: Prerequisite, BIOL 271 or 202; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 436H. Plant Genetics, Development, and Biotechnology. 3 Credits.
Recent advances in plant molecular biology, genetics, development, and biotechnology, and their potential relevance to agriculture. The course will include lectures, reading and discussions of papers from the primary literature, and student presentations.
Requisites: Prerequisite, BIOL 271 or 202; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 439. Introduction to Signal Transduction. 3 Credits.
This course presents an introduction to signal transduction pathways used by higher eukaryotes. Several signaling paradigms will be discussed to illustrate the ways that cells transmit information. Three lecture hours per week.
Requisites: Prerequisites, BIOL 202 and 205; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 441. Vertebrate Embryology. 3 Credits.
Principles of development with special emphasis on gametogenesis, fertilization, cleavage, germ layer formation, organogenesis, and mechanisms, with experimental analysis of developmental processes. Three lecture hours a week.
Requisites: Prerequisite, BIOL 205 or 252; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 441L. Vertebrate Embryology Laboratory. 1 Credit.
Descriptive and some experimental aspects of vertebrate development. Three laboratory hours a week.
Requisites: Pre- or corequisite, BIOL 441.
Grading status: Letter grade.

BIOL 442. Self Assembly in Cell Biology. 3 Credits.
In this class, we will read and discuss together the primary literature to understand how self-assembly in cell biology is harnessed in normal cells and goes awry in disease. A secondary goal will be for students to develop numeracy in cell biology so as to understand cell processes in a quantitative framework.
Requisites: Prerequisite, BIOL 205 and one additional course in biology numbered above BIOL 205.
Grading status: Letter grade.

BIOL 443. Developmental Biology. 3 Credits.
An experimental approach to an understanding of animals and plants. The approach covers developmental processes, molecular, genetic, cell biological and biochemical techniques, with an emphasis on the molecules involved in development.
Requisites: Prerequisites, BIOL 205 and CHEM 261; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 444. Molecular Basis of Disease. 3 Credits.
This course investigates the biological causes behind human diseases via critical thinking and analysis of experimental research outcomes. It approaches topics from a research perspective similar to a graduate seminar. Topics covered include genetic/inherited diseases, metabolic diseases, immunological disorders, infectious diseases, cancer, cardiovascular diseases, and neurological diseases.
Requisites: Prerequisite, BIOL 205.
Grading status: Letter grade.

BIOL 445. Cancer Biology. 3 Credits.
Selected examples will be used to illustrate how basic research allows us to understand the mechanistic basis of cancer and how these insights offer hope for new treatments.
Requisites: Prerequisites, BIOL 202 and 205.
Grading status: Letter grade.

BIOL 446. Unsolved Problems in Cellular Biology. 3 Credits.
A survey of areas of current interest in cytology, embryology, and genetics with concentration on problems that remain unsolved but that appear to be near solution. Three lecture and discussion hours a week.
Requisites: Prerequisite, BIOL 205; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 447. Cell Biology: Beyond Core Basics. 1 Credit.
Modern methods in cell biology.
Requisites: Prerequisite, BIOL 205; co-requisite, BIOL 447L; Required preparation, a grade of C+ or better in BIOL 205.
Grading status: Letter grade.

BIOL 447L. Cell Biology: Beyond Core Basics Laboratory. 3 Credits.
Modern methods in cell biology lab.
Requisites: Prerequisite, BIOL 205; co-requisite, BIOL 447; Required preparation, a grade of C+ or better in BIOL 205.
Grading status: Letter grade.

BIOL 448. Advanced Cell Biology. 3 Credits.
An advanced course in cell biology, with emphasis on the biochemistry and molecular biology of cell structure and function. Three lecture hours a week.
Requisites: Prerequisite, BIOL 205; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 449. Introduction to Immunology. 3 Credits.
This course provides a general overview of the evolution, organization, and function of the immune system. Instruction will be inquiry-based with extensive use of informational and instructional technology tools.
Requisites: Prerequisite, BIOL 205; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: MCRO 449.

BIOL 450. Neurobiology. 3 Credits.
Recommended preparation, BIOL 205. Survey of neurobiological principles in vertebrates and invertebrates, including development, morphology, physiology, and molecular mechanisms. Three lectures a week.
Grading status: Letter grade.

BIOL 451. Comparative Physiology. 3 Credits.
An examination of the physiology of animals using a comparative approach. Both invertebrate and vertebrate animals are discussed in order to elucidate general principles.
Requisites: Prerequisites, BIOL 101, and BIOL 101L or BIOL 102L, and PHYS 104 or 114 or 116, and PHYS 105 or 115 or 117.
Grading status: Letter grade.

BIOL 451L. Comparative Physiology Laboratory. 1 Credit.
The fundamental principles of physiology are explored using physical models, animal experiments, and non invasive experiments on humans, reinforcing the understanding of concepts presented in lecture.
Requisites: Pre- or corequisite, BIOL 451.
Grading status: Letter grade.

BIOL 452. Marine Microbial Symbioses: Exploring How Microbial Interactions Affect Ecosystems and Human Health. 3 Credits.
Course material covers host-microbe and microbe-microbe interactions found in marine ecosystems, including beneficial and parasitic relationships among viruses, microbes, marine animals, and humans. Limited to upper-level undergraduate science majors and graduate students.
Gen Ed: PL.
Grading status: Letter grade
Same as: MASC 446.

BIOL 454. Evolutionary Genetics. 3 Credits.
The roles of mutation, migration, genetic drift, and natural selection in the evolution of the genotype and phenotype. Basic principles are applied to biological studies. Three lecture hours a week.
Requisites: Prerequisites, BIOL 201 and 202; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 455. Behavioral Neuroscience. 3 Credits.
The neurobiological basis of animal behavior at the level of single cells, neural circuits, sensory systems, and organisms. Lecture topics range from principles of cellular neurobiology to ethological field studies.
Requisites: Prerequisite, BIOL 205; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 456. Marine Phytoplankton. 3 Credits.
Permission of the instructor. For junior and senior science majors or graduate students. Biology of marine photosynthetic protists and cyanobacteria. Phytoplankton evolution, biodiversity, structure, function, biogeochemical cycles and genomics. Harmful algal blooms, commercial products, and climate change. Three lecture/practical session hours per week.
Grading status: Letter grade
Same as: MASC 444, ENEC 444.

BIOL 457. Marine Biology. 3 Credits.
Recommended preparation, BIOL 201 or 475. A survey of plants and animals that live in the sea: characteristics of marine habitats, organisms, and the ecosystems will be emphasized. Marine environment, the organisms involved, and the ecological systems that sustain them.
Gen Ed: PL.
Grading status: Letter grade
Same as: MASC 442.

BIOL 458. Sensory Neurobiology and Behavior. 3 Credits.
Recommended preparation, BIOL 205. An exploration of sensory systems and sensory ecology in animals. Topics range from neurophysiological function of sensory receptors to the role of sensory cues in animal behavior.
Grading status: Letter grade.

BIOL 459. Field Biology at Highlands Biological Station. 1-4 Credits.
Content varies. Summer field biology at the Highlands Biological Station focuses on the special faunal and floristic processes and patterns characteristic of the southern Appalachian mountains. Five lecture and three to five laboratory and field hours per week, depending on credit.
Requisites: Prerequisite, BIOL 101; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 8 total credits. 2 total completions.
Grading status: Letter grade.

BIOL 461. Fundamentals of Ecology. 4 Credits.
Students will develop a comprehensive understanding of the field of ecology, including modern and emerging trends in ecology. They will develop literacy in the fundamental theories and models that capture ecological processes; emphasis will also be placed on the relevance of ecology and ecological research for human society.
Requisites: Prerequisite, BIOL 201.
Grading status: Letter grade
Same as: ENEC 461.

BIOL 462. Marine Ecology. 3 Credits.
Survey of the ecological processes that structure marine communities in a range of coastal habitats. Course emphasizes experimental approaches to addressing basic and applied problems in marine systems.
Requisites: Prerequisite, BIOL 201 or 475.
Gen Ed: PL.
Grading status: Letter grade
Same as: MASC 440.

BIOL 463. Field Ecology. 4 Credits.
Application of ecological theory to terrestrial and/or freshwater systems. Lectures emphasize quantitative properties of interacting population and communities within these systems. Required laboratory teaches methodology applicable for analysis of these systems. Projects emphasize experimental testing of ecological theory in the field. Two lecture and six field hours a week.
Requisites: Prerequisite, BIOL 201.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

BIOL 464. Global Change Ecology. 3 Credits.
Responses of plants, animals, and communities to climate and other global changes, emphasizing ecology, physiology, behavior, and evolution. Investigation of past responses and tools for predicting future responses.
Requisites: Prerequisite, BIOL 201.
Grading status: Letter grade.

BIOL 465. Global Biodiversity and Macroecology. 3 Credits.
We will explore global patterns of diversity of plants, animals, fungi, and microbes, and the insights gained by taking a statistical approach to describing these and other broad-scale ecological patterns.
Requisites: Prerequisite, BIOL 201; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 469. Behavioral Ecology. 3 Credits.
BIOL 278 recommended but not required and can be taken concurrently. Behavior as an adaptation to the environment. Evolution of behavioral strategies for survival and reproduction. Optimality and games that animals play. Three lecture hours a week. .
Requisites: Prerequisite, BIOL 201.
Grading status: Letter grade.

BIOL 471. Evolutionary Mechanisms. 3 Credits.
Introduction to mechanisms of evolutionary change, including natural selection, population genetics, life history evolution, speciation, and micro- and macroevolutionary trends. Three lecture hours a week.
Requisites: Prerequisites, BIOL 201 and 202; Corequisite, BIOL 471L; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 471L. Evolutionary Mechanisms Laboratory. 1 Credit.
Introduction to mechanisms of evolutionary change, including natural selection, population genetics, life history evolution, speciation, and micro- and macroevolutionary trends. Three laboratory hours a week.
Requisites: Prerequisites, BIOL 201 and 202; Corequisite, BIOL 471; Permission of the instructor for students lacking the requisites.
Grading status: Letter grade.

BIOL 472. Introduction to Plant Taxonomy. 4 Credits.
Introduction to the taxonomy of vascular plants. Principles of classification, identification, nomenclature, and description. Laboratory and field emphasis on phytography, families, description, identification, and classification of vascular plant species. Three lecture and three laboratory hours a week.
Requisites: Prerequisites, BIOL 271 and/or 272; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 473L. Mammalian Morphology Laboratory. 1 Credit.
Laboratory includes a detailed dissection of a representative mammal, emphasizing the common structure of mammals. Opportunity for independent investigation of specific functional adaptations of specialized forms.
Requisites: Corequisite, BIOL 473.
Grading status: Letter grade.

BIOL 473. Mammalian Morphology and Adaptation. 3 Credits.
An in-depth examination of the morphological adaptations of mammals. Particular attention will be given to osteology, the locomotor system, and craniofacial structures.
Requisites: Corequisite, BIOL 473L.
Grading status: Letter grade.

BIOL 474. Evolution of Vertebrate Life. 3 Credits.
Evolutionary history of the vertebrates. Emphasis on anatomical, physiological, behavioral adaptations accompanying major transitions: the move from water to land, the development of complex integrating systems. Honors version available
Requisites: Prerequisite, BIOL 201 or 202; permission of the instructor for students lacking the prerequisite.
Gen Ed: PL.
Grading status: Letter grade.

BIOL 474L. Vertebrate Structure and Evolution Laboratory. 1 Credit.
Vertebrate comparative anatomy of organ systems and their evolution with emphasis on human anatomy. Three laboratory hours a week.
Requisites: Pre- or corequisite, BIOL 474.
Grading status: Letter grade.

BIOL 474H. Evolution of Vertebrate Life. 3 Credits.
Evolutionary history of the vertebrates. Emphasis on anatomical, physiological, behavioral adaptations accompanying major transitions: the move from water to land, the development of complex integrating systems.
Requisites: Prerequisite, BIOL 201 or 202; permission of the instructor for students lacking the prerequisite.
Gen Ed: PL.
Grading status: Letter grade.

BIOL 475. Biology of Marine Animals. 3 Credits.
Required preparation, one additional course in biology. An introduction to the major animal phyla emphasizing form, function, behavior, ecology, evolution, and classification of marine invertebrates. Three lecture and three laboratory hours per week.
Requisites: Prerequisites, BIOL 101, and BIOL 101L or BIOL 102L; co-requisite, BIOL 475L.
Grading status: Letter grade.

BIOL 475L. Biology of Marine Animals Laboratory. 1 Credit.
This lab serves as an introduction to the major animal phyla emphasizing form, function, behavior, ecology, evolution, and classification of marine invertebrates.
Requisites: Prerequisites, BIOL 101, and BIOL 101L or BIOL 102L; co-requisite, BIOL 475.
Grading status: Letter grade.

BIOL 476. Avian Biology. 3 Credits.
A study of avian evolution, anatomy, physiology, neurobiology, behavior, biogeography, and ecology. Three lecture hours a week.
Requisites: Prerequisites, BIOL 101, and BIOL 101L or BIOL 102L; corequisite, BIOL 476L.
Grading status: Letter grade.

BIOL 476L. Avian Biology Laboratory. 1 Credit.
Techniques for the study of avian evolution, ecology, and behavior with emphasis on North Carolina birds. Three laboratory or field hours a week, including one or two weekend field trips.
Requisites: Corequisite, BIOL 476.
Grading status: Letter grade.

BIOL 479. Topics in Organismal Biology at an Advanced Level. 3 Credits.
Topics in organismal biology at an advanced undergraduate or graduate student level.
Grading status: Letter grade.

BIOL 479L. Laboratory in Organismal Biology: Advanced Topics. 1-2 Credits.
Laboratory in topics in organismal biology for advanced undergraduates and graduate students.
Grading status: Letter grade.

BIOL 480. Discoveries in Prevention and Cure of Infectious Disease in London. 3 Credits.
This is a Burch summer honors course taught in London. We will examine three major discoveries relating to infectious disease (vaccination, transmission via water, and antibiotics) and one major epidemic (plague) which led to no scientific response and explore how the thought of the time influenced scientific research. Honors version available
Requisites: Prerequisite, BIOL 202.
Grading status: Letter grade.

BIOL 480H. Discoveries in Prevention and Cure of Infectious Disease in London. 3 Credits.
This is a Burch summer honors course taught in London. We will examine three major discoveries relating to infectious disease (vaccination, transmission via water, and antibiotics) and one major epidemic (plague) which led to no scientific response and explore how the thought of the time influenced scientific research.
Requisites: Prerequisite, BIOL 202.
Grading status: Letter grade.

BIOL 490. Advanced Topics in Biology. 3 Credits.
Permission of the instructor. Content will vary. Three lecture and discussion hours per week by visiting and resident faculty. Honors version available
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

BIOL 490H. Advanced Topics in Biology. 3 Credits.
Permission of the instructor. Content will vary. Three lecture and discussion hours per week by visiting and resident faculty.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

BIOL 495. Undergraduate Research in Biology. 1-3 Credits.
Permission of the instructor. Biology majors only. A continuation of the hands-on research in the laboratory and/or field that was started in BIOL 395. A final written paper is required each term. May be repeated. Does not count as a course in the major. Pass/fail credit only. Honors version available
Requisites: Prerequisite, BIOL 395.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Pass/Fail.

BIOL 495H. Undergraduate Research in Biology. 1-3 Credits.
Permission of the instructor. Biology majors only. A continuation of the hands-on research in the laboratory and/or field that was started in BIOL 395. A final written paper is required each term. May be repeated. Does not count as a course in the major. Pass/fail credit only.
Requisites: Prerequisite, BIOL 395.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Pass/Fail.

BIOL 501. Ethical Issues in Life Sciences. 3 Credits.
Permission of the instructor. A consideration and discussion of ethical issues in life sciences including cloning humans, genetic engineering, stem cell research, organ transplantation, and animal experimentation. Counts as a course numbered below 400 for biology major requirements.
Grading status: Letter grade.

BIOL 514. Evolution and Development. 3 Credits.
The course examines the mechanisms by which organisms are built and evolve. In particular, it examines how novel and complex traits and organisms arise from interactions among genes and cells. Honors version available
Requisites: Prerequisites, BIOL 201, 202, and 205; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 514H. Evolution and Development. 3 Credits.
The course examines the mechanisms by which organisms are built and evolve. In particular, it examines how novel and complex traits and organisms arise from interactions among genes and cells.
Requisites: Prerequisites, BIOL 201, 202, and 205; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 524. Strategies of Host-Microbe Interactions. 3 Credits.
There is great variety in how microbes colonize and live with their hosts. The course will summarize strategies of pathogenicity, symbiosis, commensalism and mutualism. Evolutionary, cellular, and molecular aspects will be analyzed.
Requisites: Prerequisite, BIOL 205; Permission of the instructor for students lacking the prerequisite.
Gen Ed: CI.
Grading status: Letter grade.

BIOL 525. Analysis and Interpretation of Sequence-Based Functional Genomics Experiments. 3 Credits.
Practical introduction to functional genomics experiments, such as RNA-seq and ChIP-seq, and computational techniques for the analysis of these data derived from high-throughput sequencing. Interpretation of results will be stressed. Basic knowledge of molecular biology, beginning level computational skills, and familiarity with basic statistical concepts are expected. Three lecture hours a week.
Requisites: Prerequisites, BIOL 202, COMP 110 or 116, and STOR 155; corequisite, BIOL 525L.
Grading status: Letter grade.

BIOL 525L. Analysis and Interpretation of Sequence-Based Functional Genomics Experiments Laboratory. 1 Credit.
Computer lab will provide students with experience using computational software for analysis of functional genomics experiments. Basic knowledge of molecular biology, beginning level computer skills, and familiarity with basic statistical concepts are expected. One laboratory hour a week.
Requisites: Prerequisites, BIOL 202, COMP 110 or 116, and STOR 155; corequisite, BIOL 525.
Grading status: Letter grade.

BIOL 526. Computational Genetics. 4 Credits.
Introduction to computational principles underlying sequence alignment and phylogenetics, genome assembly and annotation, analysis of gene function, and other bioinformatics applications. Includes a one-hour computer laboratory. Honors version available
Requisites: Prerequisites, BIOL 202, STOR 155, and one of BIOL 226, COMP 110, or COMP 116; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 526H. Computational Genetics. 4 Credits.
Introduction to computational principles underlying sequence alignment and phylogenetics, genome assembly and annotation, analysis of gene function, and other bioinformatics applications. Includes a one-hour computer laboratory.
Requisites: Prerequisites, BIOL 202, STOR 155, and one of BIOL 226, COMP 110, or COMP 116; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 527. Seminar in Quantitative Biology. 3 Credits.
Seminar in quantitative biology for advanced students. The course counts as a quantitative biology course for the major.
Requisites: Prerequisites, COMP 110 or COMP 116, and MATH 232 or MATH 283; Permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

BIOL 527L. Laboratory in Quantitative Biology. 1 Credit.
Laboratory in quantitative biology for advanced students. The laboratory will involve mathematical analysis and modeling of biological systems and processes.
Repeat rules: May be repeated for credit. 4 total credits. 4 total completions.
Grading status: Letter grade.

BIOL 528. Quantitative Personalized Genomics. 3 Credits.
Personalized medicine, specifically using genetic markers to improve outcomes and minimize side effects (pharmacogenomics) requires the development and application of advanced computational and quantitative techniques. Students will develop computational skills to address contemporary genomic and statistical problems.
Requisites: Prerequisites, BIOL 202 and one of COMP 116, COMP 110, BIOL 226/BIOL 226L; Corequisite, BIOL 528L; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 528L. Quantitative Personalized Genomics Laboratory. 1 Credit.
Personalized medicine, specifically using genetic markers to improve outcomes and minimize side effects (pharmacogenomics) requires the development and application of advanced computational and quantitative techniques. Students will develop computational skills to address contemporary genomic and statistical problems in a lab setting.
Requisites: Prerequisites, BIOL 202 and one of COMP 116, COMP 110, BIOL 226/BIOL 226L; Corequisite, BIOL 528; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 529. Clinical and Counseling Aspects of Human Genetics. 3 Credits.
Topics in clinical genetics including pedigree analysis, counseling/ethical issues, genetic testing, screening, and issues in human research. Taught in a small group format. Active student participation is expected.
Requisites: Prerequisite, BIOL 425; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: GNET 635.

BIOL 532. Recent Discoveries in Molecular Biology. 3 Credits.
This course examines recent insights into molecular and cellular processes obtained through modern experimental approaches. Extensive reading of primary literature, discussed in a seminar format.
Requisites: Prerequisites, BIOL 202, and either BIOL 205 or a 400-level BIOL course; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 534. Mathematical Modeling in the Life Sciences. 3 Credits.
Requires some knowledge of computer programming. Model validation and numerical simulations using ordinary, partial, stochastic, and delay differential equations. Applications to the life sciences may include muscle physiology, biological fluid dynamics, neurobiology, molecular regulatory networks, and cell biology.
Requisites: Prerequisite, MATH 383.
Gen Ed: QI.
Grading status: Letter grade
Same as: MATH 564.

BIOL 535. Molecular Biology Techniques. 4 Credits.
Permission of the instructor. Recommended preparation, BIOL 434. Experiments with bacterial phage, nucleic acid isolation and properties, recombinant DNA techniques, and DNA sequencing. Additional hours in laboratory will be necessary to complete assignments.
Grading status: Letter grade.

BIOL 537. Biotechnology and Synthetic Biology. 3 Credits.
Recent advances in biotechnology and synthetic biology, and their potential relevance to medicine, agriculture, and engineering. The course will include lectures, reading and discussions of papers from the primary literature, and student projects and presentations.
Requisites: Prerequisite, BIOL 202.
Grading status: Letter grade.

BIOL 542. Light Microscopy for the Biological Sciences. 3 Credits.
Permission of the instructor. Introduction to various types of light microscopy, digital and video imaging techniques, and their application in biological sciences.
Requisites: Prerequisite, BIOL 205 for undergraduates.
Grading status: Letter grade.

BIOL 551. Comparative Biomechanics. 3 Credits.
Recommended preparation, PHYS 105. The structure and function of organisms in relation to the principles of fluid mechanics and solid mechanics.
Requisites: Prerequisites, BIOL 101, and BIOL 101L or BIOL 102L, and PHYS 104 or PHYS 116.
Grading status: Letter grade.

BIOL 552. Behavioral Endocrinology. 3 Credits.
Undergraduates need permission of the instructor to enroll. The study of the interactions among hormones, the brain, and behavior from how hormones shape the development and expression of behaviors to how behavioral interactions regulate endocrine physiology.
Grading status: Letter grade.

BIOL 553. Mathematical and Computational Models in Biology. 3 Credits.
This course introduces analytical, computational, and statistical techniques, such as discrete models, numerical integration of ordinary differential equations, and likelihood functions, to explore various fields of biology.
Requisites: Prerequisites, BIOL 201 and 202, MATH 231, and either MATH 232 or STOR 155; Co-requisite, BIOL 553L/MATH 553L; permission of the instructor for students lacking the requisites.
Gen Ed: QI.
Grading status: Letter grade
Same as: MATH 553.

BIOL 553L. Mathematical and Computational Models in Biology Laboratory. 1 Credit.
This lab introduces analytical, computational, and statistical techniques, such as discrete models, numerical integration of ordinary differential equations, and likelihood functions, to explore various fields of biology.
Requisites: Prerequisites, BIOL 201 and 202, MATH 231, and either MATH 232 or STOR 155; Co-requisite, BIOL 553/MATH 553; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: MATH 553L.

BIOL 555. Paleobotany: An Introduction to the Past History of Plants. 3 Credits.
An introduction to the fossil record of plants, investigating how plants originated and changed through geological time to produce the modern flora. Both macrofossils and microfossils will be considered. Three lecture hours a week.
Requisites: Prerequisites, BIOL 202, and one other BIOL course above 200; corequisite, BIOL 555L; permission of the instructor for students lacking the requisites.
Gen Ed: EE- Field Work.
Grading status: Letter grade
Same as: GEOL 555.

BIOL 555L. Paleobotany: An Introduction to the Past History of Plants Laboratory. 1 Credit.
The laboratory involves learning how to locate, collect, prepare, and analyze fossil plants; it also provides fossils that illustrate topics covered in lecture. Students will be involved in field trips to fossil sites and museums to learn about fossil curation and display of fossils for public education. Three laboratory hours a week.
Requisites: Prerequisites, BIOL 202 and one other BIOL course above 200; corequisite, BIOL 555.
Grading status: Letter grade.

BIOL 561. Ecological Plant Geography. 3 Credits.
Description of the major vegetation types of the world including their distribution, structure, and dynamics. The principal causes for the distribution of plant species and communities, such as climate, soils, and history will be discussed.
Requisites: Prerequisite, BIOL 101 or GEOG 110; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 562. Statistics for Environmental Scientists. 4 Credits.
Introduction to the application of quantitative and statistical methods in environmental science, including environmental monitoring, assessment, threshold exceedance, risk assessment, and environmental decision making.
Requisites: Prerequisite, STOR 155.
Grading status: Letter grade
Same as: ENEC 562.

BIOL 563. Statistical Analysis in Ecology and Evolution. 4 Credits.
Application of modern statistical analysis and data modeling in ecological and evolutionary research. Emphasis is on computer-intensive methods and model-based approaches. Familiarity with standard parametic statistics is assumed.
Requisites: Prerequisites, MATH 231 and STOR 151; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: ENEC 563.

BIOL 565. Conservation Biology. 3 Credits.
The application of biological science to the conservation of populations, communities, and ecosystems, including rare species management, exotic species invasions, management of natural disturbance, research strategies, and preserve design principles. Honors version available
Requisites: Prerequisite, BIOL 201; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 565H. Conservation Biology. 3 Credits.
The application of biological science to the conservation of populations, communities, and ecosystems, including rare species management, exotic species invasions, management of natural disturbance, research strategies, and preserve design principles.
Requisites: Prerequisite, BIOL 201; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 567. Evolutionary Ecology. 3 Credits.
Advanced consideration of the evolution of form and function. May include issues in life-history evolution, evolutionary physiology, evolutionary morphology, and the evolution of complexity. Three lecture hours per week.
Requisites: Prerequisite, BIOL 471; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 568. Disease Ecology and Evolution. 3 Credits.
Recommended preparation, one course above 400 in ecology or evolution. An advanced class covering the causes and consequences of infectious disease at the levels of whole organisms, populations, communities, and ecosystems.
Requisites: Prerequisites, BIOL 201 and MATH 231; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 579. Organismal Structure and Diversity in the Southern Appalachian Mountains. 4 Credits.
Permission of the instructor. An examination of the field biology of selected fungi, plants, or animals of the Appalachian Mountains. The morphology, taxonomy, ecology, life history, and behavior of the organisms will be explored both in the laboratory and in the field.
Grading status: Letter grade.

BIOL 590. Advanced Special Topics in Biology. 3 Credits.
Special topics in biology for advanced undergraduate students and graduate students.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

BIOL 590L. Laboratory in Advanced Special Topics in Biology. 1 Credit.
Laboratory at an advanced level in special topics in biology. Students should have had considerable previous laboratory experience.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

BIOL 602. Professional Development Skills for Ecologists and Biologists. 3 Credits.
The goal of this course is to help students who intend to become professional ecologists or biologists acquire critical skills and strategies needed for achieving their career goals.
Grading status: Letter grade
Same as: ENEC 602.

BIOL 604. Laboratory Practices for New Investigators. 1 Credit.
Required preparation, participation in an ongoing laboratory research project. Permission of the instructor. A seminar course designed to introduce students to approaches and methods needed in carrying out an independent research project in a particular focus area of biology. For advanced undergraduates and graduate students.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

BIOL 605. Reading and Writing Scientific Literature. 1 Credit.
A seminar course designed to introduce students to how to read and write scientific papers. For advanced undergraduates and graduate students.
Requisites: Prerequisite, BIOL 201 or 202.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

BIOL 620. Bacterial Genetics with Emphasis on Pathogenic and Symbiotic Interactions. 3 Credits.
Required preparation, a course in microbiology, a course in molecular biology numbered above 300, or research experience in microbiology or molecular biology. Molecular genetics of bacteria. The emphasis will be on pathogenic and symbiotic interactions of bacteria with eukaryotes, although other aspects of bacterial genetics will be considered.
Grading status: Letter grade.

BIOL 621. Principles of Genetic Analysis I. 3 Credits.
Prerequisite for undergraduates, BIOL 202. Permission of the instructor for undergraduates. Genetic principles of genetic analysis in prokaryotes and lower eukaryotes.
Grading status: Letter grade
Same as: GNET 621.

BIOL 622. Principles of Genetic Analysis II. 4 Credits.
Principles of genetic analysis in higher eukaryotes; genomics.
Requisites: Prerequisite, BIOL 621.
Grading status: Letter grade
Same as: GNET 622.

BIOL 624. Developmental Genetics. 3 Credits.
Permission of the instructor for undergraduates. Genetic and molecular control of plant and animal development. Extensive reading from primary literature.
Grading status: Letter grade
Same as: GNET 624.

BIOL 625. Seminar in Genetics. 2 Credits.
Permission of the instructor for undergraduates. Current and significant problems in genetics. May be repeated for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 6 total completions.
Grading status: Letter grade
Same as: GNET 625.

BIOL 631. Advanced Molecular Biology I. 3 Credits.
Required preparation for undergraduates, at least one undergraduate course in both biochemistry and genetics. DNA structure, function, and interactions in prokaryotic and eukaryotic systems, including chromosome structure, replication, recombination, repair, and genome fluidity. Three lecture hours a week.
Grading status: Letter grade
Same as: GNET 631, BIOC 631, MCRO 631.

BIOL 632. Advanced Molecular Biology II. 3 Credits.
Required preparation for undergraduates, at least one undergraduate course in both biochemistry and genetics. The purpose of this course is to provide historical, basic, and current information about the flow and regulation of genetic information from DNA to RNA in a variety of biological systems. Three lecture hours a week.
Grading status: Letter grade
Same as: GNET 632, BIOC 632, MCRO 632.

BIOL 639. Seminar in Plant Molecular and Cell Biology. 1 Credit.
Permission of the instructor. May be repeated for credit. Current and significant problems in plant molecular and cell biology are discussed in a seminar format. Can count as BIOL elective credit in the major if combined with other 600-level courses for a total of three credit hours.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 12 total completions.
Grading status: Letter grade.

BIOL 642. Advanced Studies of Cell Division. 3 Credits.
An advanced course in cell and molecular biology integrating genetic, biochemical, and structural aspects of the cell cycle. Principles derived from a variety of biological systems. Extensive reading of classic papers as well as recent literature.
Requisites: Prerequisite, BIOL 205; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 643. Molecular Mechanisms of the Cytoskeleton. 3 Credits.
This seminar examines the cytoskeletal systems of eukaryotes and prokaryotes via primary literature. Architectures of cytoskeletal components are compared and contrasted along with their regulators, nucleators, and molecular motors.
Requisites: Prerequisites, BIOL 205 and CHEM 430; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOL 648. Palynology. 5 Credits.
Permission of the instructor. A consideration of various aspects of palynology, including the morphology, structure, development, systematics, evolution, preparation techniques, and analysis of living and fossil pollen grains, spores, and other palynomorphs. Two lecture and six laboratory hours a week.
Grading status: Letter grade.

BIOL 649. Seminar in Cell Biology. 2 Credits.
May be repeated for credit. Can count as BIOL elective credit in the major if combined with other 600-level courses for a total of three credit hours.
Requisites: Prerequisite, BIOL 205; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 6 total completions.
Grading status: Letter grade.

BIOL 650. Animal Cognition. 3 Credits.
For advanced undergraduates and graduate students. The goal of the course is to gain an in-depth understanding of animal cognition in the context of evolution and neurobiology with an emphasis on recent research.
Grading status: Letter grade.

BIOL 657. Biological Oceanography. 4 Credits.
For graduate students; undergraduates need permission of the instructor. Marine ecosystem processes pertaining to the structure, function, and ecological interactions of biological communities; management of biological resources; taxonomy and natural history of pelagic and benthic marine organisms. Three lecture and one recitation hours per week. Two mandatory weekend fieldtrips.
Gen Ed: PL.
Grading status: Letter grade
Same as: MASC 504, ENVR 520.

BIOL 659. Seminar in Evolutionary Biology. 2 Credits.
Permission of the instructor. Advanced studies in evolutionary biology. Can count as BIOL elective credit in the major if combined with other 600-level courses for a total of three credit hours.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 6 total completions.
Grading status: Letter grade.

BIOL 661. Plant Ecology. 4 Credits.
Consideration of terrestrial, vascular plant ecology including environmental physiology, population dynamics, and community structure. Laboratory stresses collection and interpretation of field data. Three lecture and three laboratory hours a week.
Requisites: Prerequisite, BIOL 201.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

BIOL 662. Field Plant Geography. 2 Credits.
Intensive literature and field study of the plant geography and ecology of a selected region. Weekly seminar-style discussion followed by approximately nine days' field experience. May be repeated for credit.
Requisites: Prerequisites, BIOL 661 or 561 and permission of the instructor.
Grading status: Letter grade.

BIOL 669. Seminar in Ecology. 1-3 Credits.
May be repeated for credit.
Requisites: Prerequisite, BIOL 201; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 12 total completions.
Grading status: Letter grade
Same as: ENEC 669.

BIOL 680. Advanced Seminar in Recent Biological Research and Methods. 1 Credit.
Permission of the instructor. The course will cover topics and experimental approaches of current interest. Students will learn intellectual and practical aspects of cutting-edge topics in biology. It will meet for one hour per week, in a lecture and discussion format.
Repeat rules: May be repeated for credit. 3 total credits. 3 total completions.
Grading status: Letter grade.

BIOL 690. Advanced Special Topics with an Emphasis on Recent Research. 3 Credits.
Permission of the instructor. Special topics in biology with an emphasis on recent research. For advanced undergraduates and graduate students.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

BIOL 692H. Senior Honors Thesis in Biology. 3 Credits.
Permission of a faculty research director and three credit hours of BIOL 395 in the same laboratory required. Must be taken in the final semester of senior year. Fall and spring only.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

The stated prerequisites should be interpreted to read "or equivalent" and may be waived by the course instructor for students who are adequately prepared.

Courses numbered 900 and above are designed for applicants for advanced degrees. Each course requires permission of the instructor or the research director. Each may be repeated for two or more semesters for credit.

BIOL 701. Overview of Biology. 1-2 Credits.
Biology faculty will present individual research presentations followed by discussion.
Grading status: Letter grade.

BIOL 703. Recent Advances in Biology. 1-3 Credits.
A consideration of the methods and literature involved in the latest advances in selected areas of biology.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BIOL 704. Seminars in Biophysics. 2 Credits.
Permission of the instructor. Students present seminars coordinated with the visiting lecturer series of the Program in Molecular and Cellular Biophysics.
Grading status: Letter grade
Same as: BIOC 704.

BIOL 705. Best Practices for Rigor and Reproducibility in Research. 1 Credit.
A workshop to introduce best practices for increasing rigor and reproducibility in research. Permission of course directors required.
Grading status: Letter grade
Same as: BBSP 705.

BIOL 758. Molecular Population Biology. 4 Credits.
Hands-on training, experience, and discussion of the application of molecular genetic tools to questions of ecology, evolution, systematics, and conservation.
Requisites: Prerequisite, BIOL 471; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: MASC 742.

BIOL 801. Seminar in Biological Sciences. 1-2 Credits.
Permission of the instructor. Advanced seminar in interdisciplinary biological sciences.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

BIOL 810. Seminar in College Science Teaching. 2 Credits.
This interactive course will help graduate students develop the knowledge and skills needed to implement student-centered science instruction at the university level. Participants will support one another in creating a teachable unit, a personal teaching philosophy statement, and a course syllabus.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

BIOL 829. Seminar in Quantitative Biology. 1-3 Credits.
Permission of the instructor. Advanced seminar in quantitative biology.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BIOL 831. Seminar in Insect Physiology, Biochemistry, and Endocrinology. 1-2 Credits.
Permission of the instructor. Advanced seminar in insect physiology, biochemistry, and endocrinology.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BIOL 832. Seminar in Molecular Biology. 1-2 Credits.
Advanced seminar in molecular biology.
Requisites: Prerequisite, BIOL 202; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

BIOL 841. Seminar in Embryology. 1-2 Credits.
Advanced seminar in embryology.
Requisites: Prerequisite, BIOL 205; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOL 842. Seminar in Cell Biology and Biochemistry. 1-2 Credits.
Permission of the instructor. Advanced seminar in cell biology and biochemistry.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

BIOL 845. Advanced Seminar in Neurobiology. 2 Credits.
Advanced seminar in Neurobiology. Students should have previous experience in Neurobiology courses or research.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 3 total completions.
Grading status: Letter grade.

BIOL 852. Seminar in Plant Systematics. 1-2 Credits.
Permission of the instructor. Advanced seminar in plant systematics.
Grading status: Letter grade.

BIOL 853. Seminar in Plant Morphology and Anatomy. 1-2 Credits.
Permission of the instructor. Advanced seminar in plant morphology and anatomy.
Grading status: Letter grade.

BIOL 854. Seminar in Neurophysiology. 1-2 Credits.
Permission of the instructor. Advanced seminar in neurophysiology. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BIOL 855. Seminar in Invertebrate Zoology. 1-2 Credits.
Advanced seminar in invertebrate zoology. May be repeated for credit.
Requisites: Prerequisite, BIOL 475; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BIOL 856. Seminar in Vertebrate Evolutionary Biology. 1-2 Credits.
Permission of the instructor. Advanced seminar in vertebrate evolutionary biology. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BIOL 857. Seminar in Comparative Animal Behavior. 1-2 Credits.
Permission of the instructor. Advanced seminar in comparative animal behavior. May be repeated for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade
Same as: NBIO 857.

BIOL 858. Seminar in Comparative Physiology. 1-2 Credits.
Advanced seminar in comparative physiology.
Requisites: Prerequisite, BIOL 451; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade
Same as: NBIO 858.

BIOL 859. Seminar in Marine Biology. 1-2 Credits.
Permission of the instructor. Advanced seminar in marine biology. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BIOL 861. Statistical Analysis in Ecology and Evolution using R. 1 Credit.
Graduate standing in biology, ecology or genetics required. Introduction to statistical analysis and modeling of ecological and evolutionary data using the R programming environment.
Requisites: Prerequisite, STOR 155.
Grading status: Letter grade.

BIOL 890. Special Topics in Biology. 1-2 Credits.
Permission of the instructor. Consideration of special topics in biology. May be repeated once for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

BIOL 891. Graduate Seminar in Biology. 2 Credits.
Graduate standing or permission of the instructor. This course will increase students' intellectual depth across the fields of ecology, evolution, and organismal biology (EEOB). Students will read and discuss papers, attend seminars, and present research ideas. Required of all candidates for the degree in biology in the EEOB graduate program.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

BIOL 892. Special Topics in Biology for Graduate Students. 1-4 Credits.
This course is designed to allow graduate students to explore areas of biology outside their direct area of specialization. Three credits lecture only. Four credits lecture and lab.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

BIOL 901. Introduction to Graduate Research. 1-15 Credits.
Graduate research for six weeks in two laboratories. Designed primarily to acquaint first-year students with research techniques and to assess their propensity for research. Arranged by mutual agreement of students and faculty members during fall orientation. May be repeated once for credit. Six to nine hours per week.
Grading status: Letter grade.

BIOL 921. Research in Genetics. 1-15 Credits.
May be repeated for credit.
Grading status: Letter grade
Same as: GNET 905.

BIOL 931. Research in Molecular Biology. 1-15 Credits.
Acquaints early career graduate students with research techniques and assesses their propensity for research. Arranged by mutual agreement of student and faculty member.
Grading status: Letter grade.

BIOL 932. Research in Plant Molecular Biology. 1-15 Credits.
Acquaints early career graduate students with research techniques and assesses their propensity for research. Arranged by mutual agreement of student and faculty member.
Grading status: Letter grade.

BIOL 941. Research in Cytology and Cell Biology. 1-15 Credits.
Acquaints early career graduate students with research techniques and assesses their propensity for research. Arranged by mutual agreement of student and faculty member.
Grading status: Letter grade.

BIOL 942. Research in Embryology. 1-15 Credits.
Acquaints early career graduate students with research techniques and assesses their propensity for research. Arranged by mutual agreement of student and faculty member.
Grading status: Letter grade.

BIOL 943. Research in Physiology: Cellular, Comparative, Neurophysiology. 1-15 Credits.
Acquaints early career graduate students with research techniques and assesses their propensity for research. Arranged by mutual agreement of student and faculty member.
Grading status: Letter grade.

BIOL 951. Research in Neurobiology. 3-12 Credits.
Permission of the department. Research in various aspects of neurobiology. Six to 24 hours a week.
Grading status: Letter grade
Same as: NBIO 951, PHCO 951.

BIOL 952. Research in Ethology and Animal Behavior. 1-15 Credits.
Acquaints early career graduate students with research techniques and assesses their propensity for research. Arranged by mutual agreement of student and faculty member.
Grading status: Letter grade.

BIOL 953. Research in Marine Sciences. 2-21 Credits.

BIOL 954. Research in Marine Sciences on Mollusca, Crustacea, Ichthyology, or Oceanography. 1-15 Credits.
Permission of the department. At the Institute for Marine Sciences, Morehead City, NC.
Grading status: Letter grade.

BIOL 955. Research in Vertebrate or Invertebrate Zoology. 1-15 Credits.
Acquaints early career graduate students with research techniques and assesses their propensity for research. Arranged by mutual agreement of student and faculty member.
Grading status: Letter grade.

BIOL 957. Research in Plant Systematics. 1-15 Credits.
Acquaints early career graduate students with research techniques and assesses their propensity for research. Arranged by mutual agreement of student and faculty member.
Grading status: Letter grade.

BIOL 958. Research in Plant Morphology and Anatomy. 1-15 Credits.
Acquaints early career graduate students with research techniques and assesses their propensity for research. Arranged by mutual agreement for student and faculty member.
Grading status: Letter grade.

BIOL 959. Research in Paleobotany. 1-15 Credits.
Acquaints early career graduate students with research techniques and assesses their propensity for research. Arranged by mutual agreement of student and faculty member.
Grading status: Letter grade.

BIOL 961. Research in Ecology. 1-15 Credits.
Acquaints early career graduate students with research techniques and assesses their propensity for research. Arranged by mutual agreement of the student and faculty member.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

BIOL 992. Master's (Non-Thesis). 3 Credits.
Course for graduate students expecting to receive the degree of Master of Arts in Biology.
Repeat rules: May be repeated for credit.

BIOL 993. Master's Research and Thesis. 3 Credits.

BIOL 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF BIOMEDICAL ENGINEERING (GRAD)

Contact Information

Department of Biomedical Engineering
Visit Program Website (http://www.bme.unc.edu)

Nancy L. Allbritton, Chair

Biomedical engineering is a dynamic field stressing the application of engineering techniques and mathematical analysis to biomedical problems. Faculty research programs are key to the program, and they include five primary research directions: rehabilitation engineering, biomedical imaging, pharmacoengineering, regenerative medicine, and biomedical microdevices. The department offers graduate education in biomedical engineering leading to the master of science and doctor of philosophy degrees. Also, a joint graduate certificate in medical devices is offered.

Students enter this program with backgrounds in engineering, physical science, mathematics, or biological science. Curricula are tailored to fit the needs and develop the potential of individual students. In addition, courses in statistics, mathematics, life sciences, and engineering sciences provide a well-rounded background of knowledge and skills.

The Joint Biomedical Engineering Graduate Program is administered by the combined biomedical engineering graduate faculty from both North Carolina State University and the University of North Carolina at Chapel Hill. The joint program also has close working relations with the Research Triangle Institute and industries in the Research Triangle area. These associations enable students to obtain research training in a variety of fields and facilitate the selection and performance of dissertation research. Students in the joint program may study under faculty members based at the University of North Carolina at Chapel Hill or at North Carolina State University. Thus, the department provides students with excellent opportunities to realize the goal of enhancing medical care through the application of modern technology.

Admission Requirements

Students must satisfy all entrance requirements for The Graduate School of the University of North Carolina at Chapel Hill or the Graduate School at North Carolina State University and must demonstrate interest and capability commensurate with the quality of the biomedical engineering program. Prospective students may apply to the graduate school at either UNC–Chapel Hill or North Carolina State University. All applicants are considered together as a group. Generally, applications should be submitted by mid-December for consideration for admission in the coming fall semester. Applicants are expected to present Graduate Record Examination (GRE) scores; verbal scores should be at or above the 50th percentile, and quantitative scores should be at or above the 70th percentile. Applicants are expected to have at least a 30th percentile score on the written GRE component to be competitive. The program requires applicants to submit a one- to three-page personal statement about their research interest and background.

Students should have a good working knowledge of mathematics at least through differential equations, as well as two years of physical or engineering science and basic courses in biological science. Deficiencies in preparation can be made up in the first year of graduate training.

Candidates for the UNC–Chapel Hill/North Carolina State University jointly issued degrees in biomedical engineering must have met the general requirements of The Graduate School of the University of North Carolina at Chapel Hill or the North Carolina State University Graduate School.

Currently matriculating master's students are required to take a comprehensive examination encompassing coursework and thesis research. The master's comprehensive exam may be either written or oral and is administered by the student's advisory committee.

Doctoral students qualify for the Ph.D. degree by meeting grade requirements in their core courses and then advancing to written and oral preliminary exams before admission to candidacy. Details can be found on the department's Web site. Degree candidates in this program are expected to obtain experience working in a research laboratory during their residence and to demonstrate proficiency in research. The Ph.D. dissertation should be judged by the graduate committee to be of publishable quality.

Professors

Nancy L. Allbritton, Signaling in Single Cells, Microfabricated Systems for Cellular Analysis
Paul Dayton, Biomedical Imaging, Medical Imaging, Medical Devices, Medical Instrumentation
Greg Forest, Transport Processes in the Lung, Flow and Structure of Nanomaterials and Macromolecular Fluids
Edward Grant, Robotics, Biomedical Systems, Neural Networks, Biomedical Sensors, Medical Devices
Leaf Huang, Pharmacoengineering
Michael Jay, Pharmacoengineering
Frances Ligler, Microfluidics, Tissue on Chip, Biosensors, Nanotechnology, Optical Analytical Devices
Weili Lin, Medical Imaging, MRI, Cerebral Hemodynamics, Oxygen Metabolism
Terry Magnuson, Genomics, Genetics, Chromatin, Epigenetics, Development and Cancer
Russell Mumper, Pharmacoengineering
Troy Nagle, Medical Devices, Microsensors, Electronic Olfaction
Roger Narayan, Biomedical Sensors, Medical Devices, Biomaterials, Nanometer Systems
Harold Pillsbury, Neurobiology, Cochlear Implants
J. Michael Ramsey, Microfabricated Chemical Instrumentation, Microfluidics, Nanofluidics
Koji Sode, Pharmacoengineering, Biomedical Microdevices, Biomolecular Engineering, Creation of the Innovative Biomedical Devices Including Biosensing Systems

Associate Professors

Ted Bateman, Rehabilitation Engineering
Ke Cheng, Stem Cells, Regenerative Medicine
Robert Dennis, Medical Devices, Biomechatronic Design, Tissue Mechanics, Functional Tissue Engineering, Regenerative Medicine
Caterina Gallippi, Biomedical Imaging, Medical Imaging, Image Processing and Analysis
Michael Gamcsik, Biomedical Imaging, Functional Tissue Engineering, Metabolomics, Pharmacy
Shawn Gomez, Computational Biology, Bioinformatics, Mathematical Modeling, Genomics, Image Analysis, Systems Biology
He (Helen) Huang, Neural-Machine Interface, Prosthetics and Orthotics, Control of Wearable Robotics

Derek Kamper, Rehabilitation Engineering
David Lalush, Image Analysis, Biomedical Imaging, Medical Imaging, Bioinformatics, Image Processing and Analysis
Jeffrey Macdonald, Metabolomics, Functional Tissue Engineering
Scott Magness, Stem Cell Biology, Niche Dynamics, Tissue Engineering, Biomimetic Scaffolds, Single-Cell Biology
Mark Tommerdahl, Neurobiology, Image Processing and Analysis, Physiological Systems, Somatosensory Cortical Dynamic
Glenn Walker, BioMicroelectromechanical Systems, Microfluidics, Lab-on-a-Chip Systems Research
David Zaharoff, Vaccine and Immunotherapy Delivery Platforms

Associate Research Professors

Oleg Favorov, Digital/Multidimensional Signal Processing, Biomedical Systems, Neural Networks, Bioinformatics, Neurobiology
Richard Goldberg, Medical Instrumentation
Anka N. Veleva, Biomaterials, Biochemical Engineering
Paul Weinhold, Orthopaedic Biomechanics, Vibration Testing of Orthopaedic Tissues and Constructs Teaching

Associate Professors

Lianne Cartee, Mathematical Modeling, Bioelectric Stimulation
Hatice O. Ozturk, Digital Signal Processing/Multidimensional Signal Processing, Biomedical Image Processing and Analysis

Assistant Professors

Rahima Benhabbour, Pharmacoengineering, Biomedical Microdevices, Drug Delivery Devices for Disease Prevention and Treatment
Ashley Brown, Regenerative Medicine, Biomaterials, Wound Healing, Hemostasis, Microgels
Yevgeny Brudno, Pharmacoengineering, Regenerative Medicine
Jacqueline Cole, Bone Mechanics, Bone-Vascular Interactions, Aging, Fracture Healing, Stroke Rehabilitation
Michael Daniele, Biosensors, Biomaterials, Bioelectronics, Microfluidics, Materials Chemistry
Brian Diekman, Regenerative Medicine, Therapeutic Approaches for Osteoarthritis, Engineered Cartilage Tissue, Prevention of Cartilage Dysfunction
Matthew Fisher, Regenerative Medicine, Tissue Engineering, Orthopaedic Soft Tissues, Bioscaffolds, Robotics
Jason Franz, Neuromuscular Biomechanics, Sensorimotor Control, Aging and Age-related Mobility Impairment
Donald Freytes, Bioengineered Tissues, Pluripotent Stem Cells, Tissue-Specific Extracellular Matrix Scaffolds
Zhen Gu, Pharmacoengineering, Controlled Drug Delivery, Bio-Inspired Materials, Protein Engineering, Nanobiotechnology
Xiaogang Hu, Rehabilitation Engineering
Wesley Legant, Biomedical Imaging, Biomedical Microdevices, Super Resolution and Light Sheet Microscopy, Cell Migration and Mechanobiology, Microfabricated Cell Culture Platforms
Gianmarco Pinton, Biomedical Imaging, Nonlinear Ultrasound Imaging, Simulation
William Polacheck, Biomimetic Microsystems, Cellular Mechanotransduction, Microfluidics, Vascular Tissue Engineering, Tumor Cell Migration, Modeling the Tumor Microenvironment, Interstitial Flow
Michael Sano, Electromagnetics and Biophysics, Microfabrication and Microfluidic Device Development, Cancer Therapies
Anne Marion Taylor, Micro-Scale Devices, Microfluidics, Synapse Formation, Synaptic Plasticity, Protein Synthesis Research

Assistant Professor of the Practice

Andrew DiMeo, Medical Device Development

Lecturers

Kenneth Donnelly
Devin Hubbard
Naji Husseini

BMME

Advanced Undergraduate and Graduate-level Courses

BMME 405. Biomechanics of Movement. 3 Credits.
This course provides an overview of musculoskeletal anatomy, and of the mechanical behavior of biological tissues and biological systems. Students learn to apply fundamental principles of mechanics to analyze movement in humans and other animals. Applications in rehabilitation and orthopedics are emphasized.
Requisites: Prerequisites, BMME 160 and MATH 383.
Grading status: Letter grade.

BMME 410. Systems and Signals. 3 Credits.
Analysis of linear systems by transform methods to networks, including Fourier transforms, Laplace transforms, and convolution. Survey of linear systems applications to biomedical problems.
Requisites: Prerequisite, MATH 383; co-requisite, MATH 528.
Grading status: Letter grade.

BMME 420. Introduction to Synthetic Biology. 3 Credits.
This course provides an introduction to the ideas and methodologies in the field of synthetic biology. Lectures focus on fundamental concepts in molecular biology and engineering as applied to biological system design. The laboratory portion of the course provides hands-on application of fundamental techniques in synthetic biology research.
Requisites: Prerequisites, BIOL 101 and CHEM 101; corequisite, BIOL 202 and CHEM 102.
Grading status: Letter grade.

BMME 435. Biological Physics. 3 Credits.
How diffusion, entropy, electrostatics, and hydrophobicity generate order and force in biology. Topics include DNA manipulation, intracellular transport, cell division, molecular motors, single molecule biophysics techniques, nerve impulses, neuroscience.
Requisites: Prerequisites, PHYS 116 and 117, or PHYS 118 and 119.
Grading status: Letter grade
Same as: PHYS 405, BIOL 431.

BMME 441. Thermal Physics. 3 Credits.
Equilibrium statistical mechanics; the laws of thermodynamics, internal energy, enthalpy, entropy, thermodynamic potentials, Maxwell's equations.
Requisites: Prerequisites, MATH 233, and PHYS 117 or 119; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: PHYS 441.

BMME 445. Systems Neuroscience. 3 Credits.
Introduction to methodologies used to characterize a) the aggregate behavior of living neural networks and b) the changes in that behavior that occur as a function of stimulus properties, pharmacological manipulations, and other factors that dynamically modify the functional status of the network.
Requisites: Prerequisite, BMME 351 or BIOL 252.
Grading status: Letter grade.

BMME 447. Neural Basis of Rehabilitation Engineering. 3 Credits.
The course will 1) introduce basic neuroscience topics underlying sensorimotor control, and 2) introduce different types of childhood and adult neuromuscular disorders with both central and peripheral origins. The main focus of the class will be on the different techniques used for diagnosis, assessment, and rehabilitation interventions.
Requisites: Prerequisites, BMME 351, and BMME 160 or BMME 345.
Grading status: Letter grade.

BMME 455. Biofluid Mechanics. 3 Credits.
This course introduces students to basics of fluid mechanics (steady and pulsatile flows, laminar and turbulent flows, and Newtonian and non-Newtonian flows). Students learn the fundamental relationships and governing equations describing these types of flows and the basic physiology of certain systems that are highly associated with fluid flows.
Requisites: Prerequisites, BMME 315, or BMME 160 and MATH 528 and COMP 116.
Grading status: Letter grade.

BMME 461. Introduction to Medical Imaging. 3 Credits.
This class covers the underlying concepts and instrumentation of modern medical imaging modalities. Review of applicable linear systems theory and relevant principles of physics. Modalities covered include X-ray radiography (conventional film-screen imaging and modern electronic imaging), computerized tomography (including the theory of reconstruction), magnetic resonance imaging, SPECT/PET, and ultrasound imaging.
Requisites: Prerequisite, BMME 410.
Grading status: Letter grade.

BMME 465. Biomedical Instrumentation I. 4 Credits.
Topics include basic electronic circuit design, analysis of medical instrumentation circuits, physiologic transducers (pressure, flow, bioelectric, temperate, and displacement). This course includes a laboratory where the student builds biomedical devices. Note, an embedded computer kit purchase is required for this course.
Requisites: Prerequisites, BMME 350, and COMP 116 or BMME 201.
Grading status: Letter grade.

BMME 470. Tissue Engineering. 3 Credits.
Lectures in this course address how to quantitatively evaluate functional engineered tissues. The course provides an overview of the field, with emphasis on detailed evaluation of scientific and commercial progress over time, and design principles that must be met to develop a process or fabricate a functional tissue-engineered part.
Requisites: Prerequisites, BIOL 252 and BMME 351.
Grading status: Letter grade.

BMME 485. Biotechnology. 3 Credits.
This course is designed to prepare a biomedical engineering student with the survey tools to understand key components in modern biotechnologies. Fundamental concepts, theory, design, operation, and analysis of the most common biotechnologies in bioengineering will be presented.
Requisites: Prerequisite, BMME 210.
Grading status: Letter grade.

BMME 490. Special Topics in Biomedical Engineering. 3-9 Credits.
A study in the special fields under the direction of the faculty. Offered as needed for presenting material not normally available in regular BMME courses.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

BMME 495. Undergraduate Research in Biomedical Engineering as a Technical Elective. 3 Credits.
Opportunity for hands-on faculty mentored research project in biomedical engineering. Approved plan of work required with significant independent research culminating in a final paper and presentation at an appropriate venue. Departmental approval required. Course may not be repeated.
Grading status: Letter grade.

BMME 505. Skeletal Biomechanics. 3 Credits.
A firm understanding of the principles of mechanics is an important foundation to biomechanics. In this course, students will study the mechanics of materials with applications to the strength of bone, implant analysis, and testing of biological materials. A goal of this course is for students to understand how the interface of biology, mechanics, and therapies affect skeletal pathological conditions.
Requisites: Prerequisites, BMME 160 and MATH 383.
Grading status: Letter grade.

BMME 510. Biomaterials. 3 Credits.
Focus on the mechanical, chemical, and biocompatibility considerations of any material (e.g., metal, ceramic, or polymer) designed to interface with the body. Various applications of biomaterials are presented and analyzed, including femoral implants and vascular grafts, in order to guide students in a semester-long design project.
Requisites: Prerequisites, BIOL 101 and BMME 150; corequisites BIOL 252 and 252L.
Grading status: Letter grade.

BMME 550. Medical Imaging I: Ultrasonic, Optical, and Magnetic Resonance Systems. 3 Credits.
Physical and mathematical foundations of ultrasonic, optical, and magnetic resonance imaging systems in application to medical diagnostics. Each imaging modality is examined, highlighting critical system characteristics: underlying physics of the imaging system, including mechanisms of data generation and acquisition; image creation; and relevant image processing methods, such as noise reduction.
Requisites: Prerequisites, BIOS 550 and PHYS 128.
Grading status: Letter grade.

BMME 551. Medical Device Design I. 3 Credits.
Student multidisciplinary teams work with local medical professionals to define specific medical device concepts for implementation.
Grading status: Letter grade.

BMME 552. Medical Device Design II. 3 Credits.
Device prototypes designed in the first course in series. Good manufacturing practices; process validation; FDA quality system regulations; design verification and validation; regulatory approval planning; and intellectual property protection.
Grading status: Letter grade.

BMME 560. Medical Imaging II: X-Ray, CT, and Nuclear Medicine Systems. 3 Credits.
Overview of medical imaging systems using ionizing radiation. Interaction of radiation with matter. Radiation production and detection. Radiography systems and applications. Tomography. PET and SPECT systems and applications.
Requisites: Prerequisites, BIOS 550, BMME 410, and PHYS 128.
Grading status: Letter grade.

BMME 565. Biomedical Instrumentation I. 4 Credits.
Graduate students or permission of the instructor. Topics include basic electronic circuit design, analysis of medical instrumentation circuits, physiologic transducers (pressure, flow, bioelectric, temperate, and displacement). This course includes a laboratory where the student builds biomedical devices.
Grading status: Letter grade.

BMME 576. Mathematics for Image Computing. 3 Credits.
Mathematics relevant to image processing and analysis using real image computing objectives and provided by computer implementations.
Requisites: Prerequisites, COMP 116 or 401, and MATH 233; a grade of C or better is required in COMP 116 or 401, and MATH 233.
Grading status: Letter grade
Same as: COMP 576.

BMME 580. Microcontroller Applications I. 3 Credits.
Introduction to digital computers for real-time processing and control of signals and systems. Programming input and output devices using C and assembly language is stressed. Case studies are used to present software design strategies for real-time laboratory systems.
Requisites: Prerequisites, BIOL 252, BMME 350, and COMP 116 or BMME 201; co-requisite, BMME 351.
Grading status: Letter grade.

BMME 581. Microcontroller Applications II. 3 Credits.
Advanced topics in microcontroller systems used for biomedical instruments. Problems of interfacing computers with biomedical systems are studied. Students collaborate to develop a new biomedical instrument. Platforms could include the use of digital signal processing (DSP) microcontrollers or field programmable gate arrays (FPGAs), and topics could include applications such as digital signal processing and high speed data acquisition to computers.
Requisites: Prerequisites, BMME 465 and 580.
Grading status: Letter grade.

BMME 681. Human Factors Engineering and Quality Management Systems for Engineers. 3 Credits.
This course teaches human factors engineering, risk assessment, and quality management systems. At the end of the course, students will be able to apply their knowledge to their senior design project and test for a six sigma green belt certification.
Grading status: Letter grade.

BMME 691H. Honors Thesis. 3 Credits.
Research honors course. Prior approval needed from the chair or associate chair of the program for topic selection and faculty research mentor. Minimum GPA requirement, written report, and abstract requirements as set forth by the honors program.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

BMME 692H. Honors Thesis. 3 Credits.
Research honors thesis continuation with required GPA, research topic selection with approved faculty mentor. Written abstract and report per honors program guidelines submitted by specific deadlines.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

BMME 697. Senior Design Project I. 3 Credits.
Course restricted to admitted majors only. Conceptual prelude and preparation to BMME 698, in which the theoretical and practical knowledge acquired during the undergraduate tenure is applied to develop a solution to a real-world problem.
Requisites: Prerequisites, BMME 310, BMME 351, and one BMME course above 400.
Grading status: Letter grade.

BMME 698. Biomedical Engineering Senior Design II. 3 Credits.
Implementation phase of the senior design experience. Students apply the theoretical and practical knowledge they have acquired in their previous seven semesters to the design and implementation of a solution to a real-world problem.
Requisites: Prerequisite, BMME 697.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

BMME 740. Advanced Biomaterials. 3 Credits.
Medical or dental implants or explants are highlighted from textbooks, scientific literature, and personal accounts.
Requisites: Prerequisite, BMME 510; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: MTSC 740.

BMME 770. Physiology and Methods in Genomics. 4 Credits.
Lectures in physiology systems and lab techniques covering various functional genomic methods including DNA sequencing, gene arrays, proteomics, confocal microscopy, and imaging modalities.
Grading status: Letter grade.

BMME 775. Image Processing and Analysis. 3 Credits.
Approaches to analysis of digital images. Scale geometry, statistical pattern recognition, optimization. Segmentation, registration, shape analysis. Applications, software tools.
Requisites: Prerequisites, COMP 665, MATH 547, and STOR 435.
Grading status: Letter grade
Same as: COMP 775.

BMME 780. Advanced Materials Science. 3 Credits.
This course covers the physical fundamentals of material science with an in-depth discussion of structure formation in soft and hard materials and how structure determines material mechanical, electrical, thermal, and optical properties. Topics include amorphous and crystal structures, defects, dislocation theory, thermodynamics and phase diagrams, diffusion, interfaces and microstructures, solidification, and theory of phase transformation. Special emphasis will be on the structure-property relationships of (bio)polymers, (nano)composites, and their structure property relationships.
Grading status: Letter grade
Same as: MTSC 780, CHEM 780, PHYS 780.

BMME 790. Graduate Systems Physiology. 3 Credits.
This is the second semester of the two-semester series intended to provide graduate students with an introduction to systems and organ physiology.
Requisites: Prerequisite, BMME 589.
Grading status: Letter grade.

BMME 795. Information Processing in the Central Nervous System. 3 Credits.
Introduction to methodologies used to characterize a) the aggregate behavior of living neural networks and b) the changes in that behavior that occurs as a function of stimulus properties, pharmacological manipulations, and other factors that dynamically modify the functional status of the network.
Requisites: Prerequisite, BMME 589.
Grading status: Letter grade.

BMME 796. Seminar in Biomedical Imaging Science. 3 Credits.
This course serves as a gateway course to the Graduate Certificate in Biomedical Imaging Science. This course offers an introduction to the most common imaging modalities, including MR, CT, PET, SPECT, ultrasound, and optical imaging. Lectures include discussions of hardware, physics, as well as pre-clinical and clinical applications.
Grading status: Letter grade
Same as: PSYC 796.

BMME 810. Digital Nuclear Imaging. 3 Credits.
Advanced topics of physics and instrumentation in nuclear imaging and magnetic resonance techniques.
Requisites: Prerequisites, BMME 550 and 560.
Grading status: Letter grade.

BMME 840. Rehabilitation Engineering Design. 4 Credits.
Students will design an assistive technology device to help individuals with disabilities to become more independent. The project will be used in the community when it is completed.
Requisites: Prerequisite, BMME 465; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BMME 890. Special Topics. 1-21 Credits.
Permission of the instructor. Special library and/or laboratory work on an individual basis on specific problems in biomedical engineering and biomedical mathematics. Direction of students is on a tutorial basis and subject matter is selected on the basis of individual needs and interests.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

BMME 900. Research in Biomedical Engineering and Biomathematics. 1-21 Credits.
Permission of the instructor.
Grading status: Letter grade.

BMME 993. Master's Research and Thesis. 3 Credits.

BMME 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF BIOSTATISTICS (GRAD)

Contact Information

Department of Biostatistics
Visit Program Website (http://www.sph.unc.edu/bios)

Michael R. Kosorok, Chair

Biostatistics is a department within the Gillings School of Global Public Health.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Jianwen Cai (93), Survival Analysis and Regression Models, Clinical Trials, Analysis of Correlated Responses
Ding-Geng Chen (joint with the School of Social Work)
Jason P. Fine (54), Medical Diagnostic Imaging, Survival Analysis and Competing Risks
Michael Hudgens (42), Nonparametric Estimation, Group Testing, Causal Inference, Infectious Diseases
Joseph G. Ibrahim (11), Bayesian Inference, Missing Data Problems, Bayesian Survival Analysis, Generalized Linear Models, Genomics
Gary G. Koch (14), Categorical Data Analysis, Nonparametric Methods
Michael R. Kosorok (88), Biostatistics, Bioinformatics, Empirical Processes, Statistical Learning, Data Mining, Semiparametric Inference, Monte Carlo Methods, Survival Analysis, Clinical Trials, Personalized Medicine, Cancer, Cystic Fibrosis
Lisa M. LaVange, Data Science, Clinical Trials, Regulatory Issues, Analysis of Complex Survey Data
Danyu Lin (31), Survival Analysis, Semiparametric Statistical Methods, Clinical Trials
Yufeng Liu (joint with the Department of Statistics and Operations Research), Statistical Machine Learning and Data Mining, High-Dimensional Data Analysis, Nonparametric Statistics and Functional Estimation, Bioinformatics, Design and Analysis of Experiments
James Stephen Marron (joint with the Department of Statistics and Operations Research), High Dimension Low Sample Size (HDLSS), Data and/or Data, Exotic Data Types such as Manifold and Tree-Structural Data
Andrew Nobel (joint with the Department of Statistics and Operations Research), Data Mining, Statistical Data of Genomic Data, Machine Learning
Bahjat Qaqish (94), Generalized Linear Models, Survival Analysis, Statistical Computing
Richard Smith (joint with the Department of Statistics and Operations Research), Spatial Statistics, Time Series Analysis, Extreme Value Theory, Bayesian Statistics
Chirayath M. Suchindran (29), Statistical Demography
Kinh N. Truong (90), Time Series Analysis, Nonparametric Regression, Bootstrap Methods, Hazard Regression, Splines
Donglin Zeng (5), High Dimensional Data, Survival Analysis
Haibo Zhou (40), Missing/Auxiliary Data, Survival Analysis, Human Fertility
Hongtu Zhu (48), Neuroimaging Statistics, Structural Equation Models, Statistical Computing, Diagnostic Methods
Fei Zou (4), Statistical Genetics

Associate Professors

Anastasia Ivanova (83), Clinical Trials Design, Sequential Design of Binary Response Experiments, Statistical Methodology in Biostatistics
Yun Li (59) (joint with the Department of Genetics), Statistical Genetics

Assistant Professors

Yuchao Jiang, Statistical Modeling, Method Development and Data Analysis in Genetics and Genomics
Quefeng Li, High Dimensional Data Analysis, Integrative Analysis of Omics Data, Robust Statistics, Factor Models
Michael I. Love (joint with the Department of Genetics), Statistical Modeling of Genetics Data, High-Throughput Sequencing, RNA Sequencing (RNA-seq), Empirical Bayes Methods

Research Professors

Richard E. Bilsborrow (30), Economic Demography, Demography, Economic Development, Environment
John S. Preisser Jr. (89), Categorical Data, Longitudinal Data Analysis
Paul W. Stewart (84), Linear Models, Distribution Theory, Statistical Inference, Longitudinal Data

Clinical Professor

David J. Couper (77), Epidemiological Methods, Longitudinal Data, Data Quality

Research Associate Professors

Eric Bair (61) (joint with the School of Dentistry), Cancer, Disabilities, Reproductive Health, Women's Health, Chronic Pain, Temporomandibular Disorders
Feng-Chang Lin, Survival Analysis, Generalized Linear Models, Longitudinal Analysis, Hearth Disease and Stroke, Infectious Disease, Neuroscience
Todd A. Schwartz (13), Categorical Data, Clinical Trials
Xianming Tan, Finite Mixture Models, Design of Clinical Studies, Variable Selection for Zero-Inflated Models, Non-Parametric Regression

Research Assistant Professors

Jamie B. Crandell (64) (joint with the School of Nursing), Bayesian Methods, Longitudinal Analysis and Measurement Error Modeling
Matthew A. Psioda, Bayesian Trial Design, Computational and Statistical Epigenomics, Bayesian Computation
Naim Rashid, Cancer, Genomics, High Throughput Sequencing, High Dimensional Data Analysis, Variable Selection
Daniela T. Sotres-Alvarez, Global Health, Nutrition, Obesity
Mark A. Weaver (46) (joint with the Department of Medicine), Frequentist Statistical Inference

Clinical Associate Professors

Robert Agans, Population-Based Research Methods, Multimode Data Collection Procedures, Questionnaire Development, Standardization and Validation, Hard-to-Reach Populations and Minorities
Jane Monaco (43), Survival Analysis, Correlated Failure Time Data

Clinical Assistant Professors

Annie Green Howard, Cardiovascular Disease, Global Health
Matthew Loop,Spatial statistics, cardiovascular disease, heart failure

Research Instructor

Katherine J. Roggenkamp (3), Statistical Computing

Adjunct Professors

Alan F. Karr
Herman E. Mitchell
Shyamal D. Peddada
Sonia Thomas
Clarice R. Weinberg

Adjunct Associate Professors

Georgiy Bobashev
Brian Neelon
Wei Sun
William Valdar

Adjunct Assistant Professors

Matthew Biggs
Liddy Chen
Eric B. Laber
Jean Orelien
Sean L. Simpson
Shanshan Zhao
Richard Zink

Professors Emeriti

Shrikant I. Bangdiwala
Lloyd Chambless
Clarence E. Davis
James E. Grizzle
Ronald W. Helms
Lawrence L. Kupper
Keith E. Muller
Dana E. Quade
Pranab K. Sen
Michael J. Symons
Craig D. Turnbull

BIOS

Advanced Undergraduate and Graduate-level Courses

BIOS 500H. Introduction to Biostatistics. 3 Credits.
Access to SAS, Excel required. Permission of instructor for nonmajors. Introductory course in probability, data analysis, and statistical inference designed for B.S.P.H. biostatistics students. Topics include sampling, descriptive statistics, probability, confidence intervals, tests of hypotheses, chi-square distribution, 2-way tables, power, sample size, ANOVA, non-parametric tests, correlation, regression, survival analysis.
Requisites: Prerequisite, MATH 231 and 232; corequisite, BIOS 511.
Grading status: Letter grade.

BIOS 511. Introduction to Statistical Computing and Data Management. 4 Credits.
Required preparation, previous or concurrent course in applied statistics. Permission of instructor for nonmajors. Introduction to use of computers to process and analyze data, concepts and techniques of research data management, and use of statistical programming packages and interpretation. Focus is on use of SAS for data management and reporting.
Grading status: Letter grade.

BIOS 512. Data Science Basics. 3 Credits.
Students will gain proficiency with R, data wrangling, data quality control and cleaning, data visualization, exploratory data analysis, with an overall emphasis on the principles of good data science, particularly reproducible research. The course will also develop familiarity with several software tools for data science best practices, such as Git, Docker, Jupyter, Make, and Nextflow.
Requisites: Pre- or corequisite, BIOS 600.
Grading status: Letter grade.

BIOS 540. Problems in Biostatistics. 1-15 Credits.
Arrangements to be made with the faculty in each case. A course for students of public health who wish to make a study of some special problem in the statistics of the life sciences and public health. Honors version available
Repeat rules: May be repeated for credit. 15 total credits. 4 total completions.
Grading status: Letter grade.

BIOS 540H. Problems in Biostatistics. 1-15 Credits.
Arrangements to be made with the faculty in each case. A course for students of public health who wish to make a study of some special problem in the statistics of the life sciences and public health.
Repeat rules: May be repeated for credit. 15 total credits. 4 total completions.
Grading status: Letter grade.

BIOS 545. Principles of Experimental Analysis. 3 Credits.
Required preparation, basic familiarity with statistical software (preferably SAS able to do multiple linear regression) and introductory biostatistics, such as BIOS 600. Continuation of BIOS 600. Analysis of experimental and observational data, including multiple regression and analysis of variance and covariance. Permission of the instructor for nonmajors.
Requisites: Prerequisites, BIOS 600 or SPHG 711.
Grading status: Letter grade.

BIOS 600. Principles of Statistical Inference. 3 Credits.
Required preparation, knowledge of basic descriptive statistics. Major topics include elementary probability theory, probability distributions, estimation, tests of hypotheses, chi-squared procedures, regression, and correlation.
Grading status: Letter grade.

BIOS 611. Introduction to Data Science. 4 Credits.
Topics will include gaining proficiency with R and Python, data wrangling, data quality control and cleaning, data visualization, exploratory data analysis, and introductory applied optimization, with an overall emphasis on the principles of good data science, particularly reproducible research. Some emphasis will be given to large data settings such as genomics or claims data. The course will also develop familiarity with software tools for data science best practices, such as Git, Docker, Jupyter, and Nextflow.
Requisites: Prerequisites, MATH 232 and 416, and STOR 151.
Grading status: Letter grade.

BIOS 635. Introduction to Machine Learning. 3 Credits.
This course will be an introductory course to machine learning. The goal is to equip students with knowledge of existing tools for data analysis and to get students prepared for more advanced courses in machine learning. This course is restricted to SPH Master of Public Health students.
Requisites: Prerequisite, BIOS 512 or 650; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOS 650. Basic Elements of Probability and Statistical Inference I. 4 Credits.
Required preparation, two semesters of calculus (such as MATH 231, 232). Fundamentals of probability; discrete and continuous distributions; functions of random variables; descriptive statistics; fundamentals of statistical inference, including estimation and hypothesis testing.
Grading status: Letter grade.

BIOS 660. Probability and Statistical Inference I. 3 Credits.
Required preparation, three semesters of calculus (such as MATH 231, 232, 233). Introduction to probability; discrete and continuous random variables; expectation theory; bivariate and multivariate distribution theory; regression and correlation; linear functions of random variables; theory of sampling; introduction to estimation and hypothesis testing.
Grading status: Letter grade.

BIOS 661. Probability and Statistical Inference II. 3 Credits.
Distribution of functions of random variables; Helmert transformation theory; central limit theorem and other asymptotic theory; estimation theory; maximum likelihood methods; hypothesis testing; power; Neyman-Pearson Theorem, likelihood ratio, score, and Wald tests; noncentral distributions.
Requisites: Prerequisite, BIOS 660; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOS 662. Intermediate Statistical Methods. 4 Credits.
Principles of study design, descriptive statistics, sampling from finite and infinite populations, inferences about location and scale. Both distribution-free and parametric approaches are considered. Gaussian, binomial, and Poisson models, one-way and two-way contingency tables.
Requisites: Pre- or corequisites, BIOS 511 and 550.
Grading status: Letter grade.

BIOS 663. Intermediate Linear Models. 4 Credits.
Required preparation, BIOS 662. Matrix-based treatment of regression, one-way and two-way ANOVA, and ANCOVA, emphasizing the general linear model and hypothesis, as well as diagnostics and model building. Reviews matrix algebra. Includes statistical power for linear models and binary response regression methods.
Grading status: Letter grade.

BIOS 664. Sample Survey Methodology. 4 Credits.
Fundamental principles and methods of sampling populations, with emphasis on simple, random, stratified, and cluster sampling. Sample weights, nonsampling error, and analysis of data from complex designs are covered. Practical experience through participation in the design, execution, and analysis of a sampling project.
Requisites: Prerequisite, BIOS 550; permission of the instructor for students lacking the prerequisite.
Gen Ed: EE- Field Work.
Grading status: Letter grade
Same as: STOR 358.

BIOS 665. Analysis of Categorical Data. 3 Credits.
Introduction to the analysis of categorized data: rates, ratios, and proportions; relative risk and odds ratio; Cochran-Mantel-Haenszel procedure; survivorship and life table methods; linear models for categorical data. Applications in demography, epidemiology, and medicine.
Requisites: Prerequisites, BIOS 545, 550, and 662; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOS 667. Applied Longitudinal Data Analysis. 3 Credits.
Analysis of variance and multiple linear regression course at the level of BIOS 545 or 663 required. Familiarity with matrix algebra recommended. Univariate and multivariate repeated measures ANOVA, GLM for longitudinal data, linear mixed models. Estimation and inference, maximum and restricted maximum likelihood, fixed and random effects.
Grading status: Letter grade.

BIOS 668. Design of Public Health Studies. 3 Credits.
Statistical concepts in basic public health study designs: cross-sectional, case-control, prospective, and experimental (including clinical trials). Validity, measurement of response, sample size determination, matching and random allocation methods.
Requisites: Prerequisites, BIOS 545 and 550.
Grading status: Letter grade.

BIOS 669. Working with Data in a Public Health Research Setting. 3 Credits.
Provides a foundation and training for working with data from clinical trials or research studies. Topics: issues in study design, collecting quality data, using SAS and SQL to transform data, typical reports, data closure and export, and working with big data.
Requisites: Prerequisite, BIOS 511 or EPID 700; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOS 670. Demographic Techniques I. 3 Credits.
Source and interpretation of demographic data; rates and ratios, standardization, complete and abridged life tables; estimation and projection of fertility, mortality, migration, and population composition.
Grading status: Letter grade.

BIOS 672. Probability and Statistical Inference I. 4 Credits.
Required preparation, three semesters of calculus. Introduction to probability; discrete and continuous random variables; combinatorics; expectation; random sums, multivariate distributions; functions of random variables; theory of sampling; convergence of sequences, power series, types of convergence, L'Hopital's rule, differentiable functions, Lebesgue integration, Fubini's theorem, convergence theorems, complex variables, Laplace transforms, inversion formulas.
Grading status: Letter grade.

BIOS 673. Probability and Statistical Inference II. 4 Credits.
Distribution of functions of random variables; central limit theorem and other asymptotic theory; estimation theory; hypothesis testing; Neyman-Pearson Theorem, likelihood ratio, score, and Wald tests; noncentral distributions. Advanced problems in statistical inferences, including information inequality, best unbiased estimators, Bayes estimators, asymptotically efficient estimation, nonparametric estimation and tests, simultaneous confidence intervals.
Requisites: Prerequisite, BIOS 660; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOS 680. Introductory Survivorship Analysis. 3 Credits.
Introduction to concepts and techniques used in the analysis of time to event data, including censoring, hazard rates, estimation of survival curves, regression techniques, applications to clinical trials.
Requisites: Prerequisite, BIOS 661; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOS 690. Special Topics in Biostatistics. 1-3 Credits.
Field/topical/research seminar. Instructors use this course to offer instruction in particular topics or approaches.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 6 total completions.
Grading status: Letter grade.

BIOS 691. Field Observations in Biostatistics. 1 Credit.
Field visits to, and evaluation of, major nonacademic biostatistical programs in the Research Triangle area. Field fee: $25.
Grading status: Letter grade.

BIOS 693H. Honors Research in Biostatistics. 3 Credits.
Directed research. Written and oral reports required.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

BIOS 694H. Honors Research in Biostatistics. 3 Credits.
Directed research. Written and oral reports required.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

BIOS 700. Research Skills in Biostatistics. 1 Credit.
Permission of the department for students with passing grade of either doctoral qualifying examination in biostatistics. BIOS 700 will introduce doctoral students in biostatistics to research skills necessary for writing a dissertation and for a career in research.
Requisites: Prerequisites, BIOS 760, 761 or 758, 762, 763, and 767.
Grading status: Letter grade.

BIOS 735. Statistical Computing - Basic Principles and Applications. 4 Credits.
Required preparation, one undergraduate-level programming class. Teaches important concepts and skills for statistical software development using case studies. After this course, students will have an understanding of the process of statistical software development, knowledge of existing resources for software development, and the ability to produce reliable and efficient statistical software.
Requisites: Prerequisites, BIOS 660, 661, 662, and 663.
Grading status: Letter grade.

BIOS 740. Specialized Methods in Health Statistics. 1-21 Credits.
Permission of the instructor. Statistical theory applied to special problem areas of timely importance in the life sciences and public health. Lectures, seminars, and/or laboratory work, according to the nature of the special area under study.
Grading status: Letter grade.

BIOS 745. Intercellular Signaling in Development and Disease. 1 Credit.
This graduate-level course concentrates on up-to-date views of intercellular signal processing, with emphasis on signal transduction mechanisms as they relate to cellular/physiological responses in both normal development and disease. Signaling mechanisms that will be discussed include autocrine, paracrine, juxtacrine signaling and cell-matrix interactions.
Grading status: Letter grade
Same as: PHCO 745.

BIOS 752. Design and Analysis of Clinical Trials. 3 Credits.
This course will introduce the methods used in clinical. Topics include dose-finding trials, allocation to treatments in randomized trials, sample size calculation, interim monitoring, and non-inferiority trials.
Requisites: Prerequisites, BIOS 600 and 661.
Grading status: Letter grade.

BIOS 756. Advanced Nonparametric Methods in Biometric Research. 3 Credits.
Theory and application of nonparametric methods for various problems in statistical analysis. Includes procedures based on randomization, ranks and U-statistics. A knowledge of elementary computer programming is assumed.
Requisites: Prerequisite, BIOS 661.
Grading status: Letter grade.

BIOS 759. Applied Time Series Analysis. 3 Credits.
Topics include correlograms, periodograms, fast Fourier transforms, power spectra, cross-spectra, coherences, ARMA and transfer-function models, spectral-domain regression. Real and simulated data sets are discussed and analyzed using popular computer software packages.
Requisites: Prerequisites, BIOS 661 and 663; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOS 760. Advanced Probability and Statistical Inference I. 4 Credits.
Measure space, sigma-field, measurable functions, integration, conditional probability, distribution functions, characteristic functions, convergence modes, SLLN, CLT, Cramer-Wold device, delta method, U-statistics, martingale central limit theorem, UMVUE, estimating function, MLE, Cramer-Rao lower bound, information bounds, LeCam's lemmas, consistency, efficiency, EM algorithm.
Requisites: Prerequisite, BIOS 661; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOS 761. Advanced Probability and Statistical Inference II. 4 Credits.
Elementary decision theory: admissibility, minimaxity, loss functions, Bayesian approaches. Hypothesis testing: Neyman-Pearson theory, UMP and unbiased tests, invariance, confidence sets, contiguous alternatives. Elements of stochastic processes: Poisson processes, renewal theory, Markov chains, martingales, Brownian motion.
Requisites: Prerequisite, BIOS 760; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOS 762. Theory and Applications of Linear and Generalized Linear Models. 4 Credits.
Linear algebra, matrix decompositions, estimability, multivariate normal distributions, quadratic forms, Gauss-Markov theorem, hypothesis testing, experimental design, general likelihood theory and asymptotics, delta method, exponential families, generalized linear models for continuous and discrete data, categorical data, nuisance parameters, over-dispersion, multivariate linear model, generalized estimating equations, and regression diagnostics.
Requisites: Prerequisites, BIOS 661 and 663, MATH 547, and 416 or 577; Co-requisite, BIOS 760.
Grading status: Letter grade.

BIOS 764. Advanced Survey Sampling Methods. 3 Credits.
Continuation of BIOS 664 for advanced students: stratification, special designs, multistage sampling, cost studies, nonsampling errors, complex survey designs, employing auxiliary information, and other miscellaneous topics.
Requisites: Prerequisite, BIOS 664.
Grading status: Letter grade.

BIOS 765. Models and Methodology in Categorical Data. 3 Credits.
Theory of statistical methods for analyzing categorical data by means of linear models; multifactor and multiresponse situations; interpretation of interactions.
Requisites: Prerequisites, BIOS 661, 663, 665, and 666.
Grading status: Letter grade.

BIOS 767. Longitudinal Data Analysis. 4 Credits.
Presents modern approaches to the analysis of longitudinal data. Topics include linear mixed effects models, generalized linear models for correlated data (including generalized estimating equations), computational issues and methods for fitting models, and dropout or other missing data.
Requisites: Prerequisites, BIOS 661 and 762; Permission of the instructor for nonmajors.
Grading status: Letter grade.

BIOS 771. Demographic Techniques II. 3 Credits.
Required preparation, integral calculus. Life table techniques; methods of analysis when data are deficient; population projection methods; interrelations among demographic variables; migration analysis; uses of population models.
Requisites: Prerequisite, BIOS 670.
Grading status: Letter grade.

BIOS 772. Statistical Analysis of MRI Images. 3 Credits.
The course will review major statistical methods for the analysis of MRI and its applications in various studies.
Grading status: Letter grade.

BIOS 773. Statistical Analysis with Missing Data. 3 Credits.
Fundamental concepts, including classifications of missing data, missing covariate and/or response data in linear models, generalized linear models, longitudinal data models, and survival models. Maximum likelihood methods, multiple imputation, fully Bayesian methods, and weighted estimating equations. Focus on biomedical sciences case studies. Software packages include WinBUGS, SAS, and R.
Requisites: Prerequisites, BIOS 761 and 762.
Grading status: Letter grade.

BIOS 774. Statistical Learning and High Dimensional Data. 3 Credits.
Introductory overview of statistical learning methods and high-dimensional data analysis. Involves three major components: supervised or unsupervised learning methods, statistical learning theory, and statistical methods for high-dimensional data including variable selection and multiple testing. Real examples are used.
Requisites: Prerequisite, BIOS 661; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOS 775. Statistical Methods in Diagnostic Medicine. 3 Credits.
Statistical concepts and techniques for evaluating medical diagnostic tests and biomarkers for detecting disease. Measures for quantifying test accuracy. Statistical procedures for estimating and comparing these quantities, including regression modeling. Real data will be used to illustrate the methods. Developments in recent literature will be covered.
Requisites: Prerequisites, BIOS 761 and 762.
Grading status: Letter grade.

BIOS 776. Causal Inference in Biomedical Research. 3 Credits.
This course will consider drawing inference about causal effects in a variety of settings using the potential outcomes framework. Topics covered include causal inference in randomized experiments and observational studies, bounds and sensitivity analysis, propensity scores, graphical models, and other areas.
Requisites: Prerequisites, BIOS 661 and 663; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOS 777. Mathematical Models in Demography. 3 Credits.
Permission of the instructor. A detailed presentation of natality models, including necessary mathematical methods, and applications; deterministic and stochastic models for population growth, migration.
Grading status: Letter grade.

BIOS 779. Bayesian Statistics. 4 Credits.
Topics include Bayes' theorem, the likelihood principle, prior distributions, posterior distributions, predictive distributions, Bayesian modeling, informative prior elicitation, model comparisons, Bayesian diagnostic methods, variable subset selection, and model uncertainty. Markov chain Monte Carlo methods for computation are discussed in detail.
Requisites: Prerequisite, BIOS 762; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOS 780. Theory and Methods for Survival Analysis. 3 Credits.
Counting process-martingale theory, Kaplan-Meier estimator, weighted log-rank statistics, Cox proportional hazards model, nonproportional hazards models, multivariate failure time data.
Requisites: Prerequisites, BIOS 760 and 761; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOS 781. Statistical Methods in Human Genetics. 4 Credits.
An introduction to statistical procedures in human genetics, Hardy-Weinberg equilibrium, linkage analysis (including use of genetic software packages), linkage disequilibrium and allelic association.
Requisites: Prerequisites, BIOS 661 and 663; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOS 782. Statistical Methods in Genetic Association Studies. 3 Credits.
This course provides a comprehensive survey of the statistical methods for the designs and analysis of genetic association studies, including genome-wide association studies and next-generation sequencing studies. The students will learn the theoretical justifications for the methods as well as the skills to apply them to real studies.
Requisites: Prerequisite, BIOS 760.
Grading status: Letter grade.

BIOS 784. Introduction to Computational Biology. 3 Credits.
Molecular biology, sequence alignment, sequence motifs identification by Monte Carlo Bayesian approaches, dynamic programming, hidden Markov models, computational algorithms, statistical software, high-throughput sequencing data and its application in computational biology.
Requisites: Prerequisites, BIOS 661 and 663; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOS 785. Statistical Methods for Gene Expression Analysis. 3 Credits.
Clustering algorithms, classification techniques, statistical techniques for analyzing multivariate data, analysis of high dimensional data, parametric and semiparametric models for DNA microarray data, measurement error models, Bayesian methods, statistical software, sample size determination in microarray studies, applications to cancer.
Requisites: Prerequisites, BIOS 661 or 673, and 663; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: BCB 785.

BIOS 791. Empirical Processes and Semiparametric Inference. 3 Credits.
Theory and applications of empirical process methods to semiparametric estimation and inference for statistical models with both finite and infinite dimensional parameters. Topics include bootstrap, Z-estimators, M-estimators, semiparametric efficiency.
Requisites: Prerequisite, BIOS 761; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BIOS 841. Principles of Statistical Collaboration and Leadership. 3 Credits.
An introduction to the statistical collaborative process and leadership skills. Emphasized topics include problem solving, study design, data analysis, ethical conduct, teamwork, career paths, data management, written and oral communication with scientists and collaborators.
Grading status: Letter grade.

BIOS 842. Practice in Statistical Consulting. 1-21 Credits.
Under supervision of a faculty member, the student interacts with research workers in the health sciences, learning to abstract the statistical aspects of substantive problems, to provide appropriate technical assistance, and to communicate statistical results.
Requisites: Prerequisites, BIOS 511, 545, 550, and 841; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

BIOS 843. Seminar in Biostatistics. 1 Credit.
This seminar course is intended to give students exposure ot cutting edge research topics and hopefully help them in their choice of a thesis topic. It also allows the student to meet and learn from major researchers in the field.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BIOS 844. Leadership in Biostatistics. 3 Credits.
Using lectures and group exercises, students are taught where and how biostatisticians can offer leadership in both academic and nonacademic public health settings.
Requisites: Prerequisite, BIOS 841.
Grading status: Letter grade.

BIOS 850. Training in Statistical Teaching in the Health Sciences. 1-21 Credits.
Required preparation, a minimum of one year of graduate work in statistics. Principles of statistical pedagogy. Students assist with teaching elementary statistics to students in the health sciences. Students work under the supervision of the faculty, with whom they have regular discussions of methods, content, and evaluation of performance.
Grading status: Letter grade.

BIOS 889. Research Seminar in Biostatistics. 0.5-21 Credits.
Permission of the instructor. Seminar on new research developments in selected biostatistical topics.
Grading status: Letter grade.

BIOS 990. Research in Biostatistics. 1-21 Credits.
Individual arrangements may be made by the advanced student to spend part or all of his or her time in supervised investigation of selected problems in statistics.
Grading status: Letter grade.

BIOS 992. Master's (Non-Thesis). 3 Credits.

BIOS 994. Doctoral Research and Dissertation. 3 Credits.

Master of Public Health (M.P.H.) Public Health Data Science Concentration Description

The Public Health Data Science concentration (https://sph.unc.edu/resource-pages/master-of-public-health-2/public-health-data-science-concentration), one of the first applied data science programs situated within a school of public health, gives students the skills and knowledge to employ cutting-edge data science tools and respond to pressing public health issues with effective solutions. Data science combines the statistical skills to manipulate data and make inferences, the mathematical skills to model phenomena and make predictions, and the computer science skills to manage and analyze large data sets. Data science draws upon multiple disciplines, combining the statistical skills to manipulate data and make inferences, the mathematical skills to model phenomena and make predictions, and the computer science skills to manage and analyze large data sets. Steeped in the public health context, our program offers a unique focus on leveraging the foundational statistical, mathematical, and computer science elements of data science to generate useful information from data sources relevant to public health.

Requirements

Requirements for the **M.P.H.** Degree in the **Public Health Data Science** Concentration

Code	Title	Hours
M.P.H. Integrated Core		
BIOS 650	Basic Elements of Probability and Statistical Inference I Fall 1, *	4
EPID 711	Clinical Measurement and Evaluation Fall 1, **	3
SPHG 713	Understanding Public Health Issues Fall 1	2
SPHG 721	Conceptualizing Public Health Solutions Spring 1	2
SPHG 722	Developing, Implementing, and Evaluating Public Health Solutions Spring 1	4
M.P.H. Concentration		
BIOS 512	Data Science Basics	3
BIOS 635	Introduction to Machine Learning	3
BIOS 545	Principles of Experimental Analysis	3
Advanced, graduate-level, Data Science course		3
M.P.H. Practicum		
SPHG 701	MPH Practicum Preparation Spring 1	2
Practicum: 200 minimum hours Summer 1		
SPHG 702	MPH Practicum Reflection Fall 2	1
M.P.H. Electives		
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
M.P.H. Culminating Experience		

BIOS 992	Master's (Non-Thesis) [Spring 2]	3
Total Hours		42

* Approved substitute for SPHG 711 for students in this concentration.

** Approved substitute for SPHG 712 for students in this concentration.

Competencies

Students will develop the following **Public Health Data Science competencies**, building on the foundational public health knowledge they attain in the Gillings M.P.H. Integrated Core courses.

PHDS01.	Manipulate data from a variety of sources to support statistical and epidemiological analysis and prepare data summaries.
PHDS02.	Select and use data visualization methods to interpret and communicate research results, with the overall objective of conducting reproducible research, both individually and in project teams.
PHDS03.	Select and utilize appropriate data analysis and machine learning methods to solve problems and make improvements in a given public health context.
PHDS04.	Understand, evaluate, and constructively address potential sources of sampling bias and other biases and key sources of uncertainty in data driven health research.
PHDS05.	Provide tools that facilitate the expansion of complex statistics and methods to public health contexts traditionally reticent to move away from more traditional approaches, thereby extending the reach of quantitative and methodological innovations in public health.

Admissions

Please visit Applying to the Gillings School (https://sph.unc.edu/students/how-to-apply) first for details and information. Application to the residential M.P.H. is a two-step process. Please apply separately to (1) SOPHAS and (2) UNC–Chapel Hill (via the Graduate School application). Visit https://gradschool.sites.unc.edu/master-of-public-health/ for more details. If you are interested in the online M.P.H., please visit the M.P.H.@UNC (https://onlinemph.unc.edu) Web site and fill out an inquiry form.

Practicum

This 200 (minimum) hour planned, mentored, and evaluated work experience (paid or unpaid) gives students the real-world opportunity to integrate and apply knowledge, skills, and values from Year One of their Gillings M.P.H. training in a professional public health setting such as a nonprofit organization, hospital, local or state health department, or for-profit firm (public or private sectors). Please visit the M.P.H. Practicum Web site (https://sph.unc.edu/resource-pages/master-of-public-health-2/mph-practicum) for additional information. In order to meet graduation requirements, a Gillings M.P.H. practicum must:

1. Occur after a student has completed the Gillings M.P.H. Core courses, the M.P.H. practicum preparation course (SPHG 701), and at least one concentration-required course from the student's declared concentration. In extenuating circumstances and with the approval from the student's declared concentration, some exceptions may apply.
2. Yield a least two student-generated products, produced in the practicum setting for the practicum setting, that allow for attainment of at least three (CEPH) M.P.H. Foundational and two concentration-specific competencies (Appendix A). In extenuating circumstances and with the approval from the concentration, students can petition to substitute up to two CEPH Foundational competencies for the concentration-specific competencies.
3. Be mentored by a supervisor (preceptor) with an advanced degree in public health or equivalent experience with expertise in the practicum project area.
4. Comprise a *minimum* of 200 hours (equivalent to five weeks of full-time work) in a location approved for student travel (UNC Travel Policy (https://global.unc.edu/files/2018/02/UNC-Travel-Policy-Final.pdf)), and the student must complete *UNC Gillings International Pre-Departure Travel Requirements* prior to travel.

Culminating Experience

Each student completes a 3-credit culminating experience and produces a high-quality written product that is completed near the end of the program of study. This culminating experience ideally is delivered in a manner that is useful to external stakeholders, such as nonprofit or governmental organizations, and could take the form of a course-based capstone project or master's paper, but will be tailored to the concentration a student chooses.

Academic Advising and Faculty Mentoring

We are committed to providing quality academic advising and mentoring for all students. We ensure that M.P.H. students get the guidance they need with several components: 1) an orientation program that provides an overview of the types and sources of M.P.H. advising; 2) cohort advising sessions to disseminate information that is relevant to course planning and registration; 3) faculty mentoring that provides students with tailored support for their academic, professional, personal development, and practicum support.

M.P.H. students will complete a 2-semester, 12-credit-hour **Integrated Core** taught by an interdisciplinary team of instructors. The 6-credit first semester (fall) focuses on understanding public health issues, and the second semester (6-credit spring courses) focuses on creating solutions to those issues.

All M.P.H. students take **COMPASS (Core Online Modules to Promote and Accelerate Student Success).** These brief, self-paced online modules are open for students prior to their first academic year. Students can complete any and all parts of COMPASS up to and including the first week of class.

Electives: For the remaining 9 credits, students are free to choose elective courses from any of the 12 concentration areas listed above or from other courses in the Gillings School.

For information on policies and procedures, please visit the Gillings School Student Handbook (https://sph.unc.edu/students/gillings-school-student-handbook) Web site.

KENAN–FLAGLER BUSINESS SCHOOL (GRAD)

Contact Information

Kenan–Flagler Business School
Visit Program Website (http://www.kenan-flagler.unc.edu)

Douglas A. Shackelford, Dean

The Kenan–Flagler Business School offers programs of graduate study leading to the degrees of master of business administration, master of accounting, and doctor of philosophy. The school is committed to providing cutting-edge, real-world business education and research. Known for its collegial, intimate environment and selective, diverse admissions, the school prepares tomorrow's leaders in business and industry.

The school pioneered the team approach to learning more than a quarter century ago and has more recently added cross-functional, entrepreneurial, and global priorities to its curriculum.

Kenan–Flagler is recognized for world-class teaching. The faculty consistently has been nationally ranked for teaching excellence, availability, and responsiveness to students, with an emphasis on relevant, applied research and case development. Through these efforts, the faculty constantly strives to give students great opportunities for learning.

In fall 1997, the Kenan–Flagler Business School moved to its new state-of-the-art facility located on South Campus. Building features include 18 classrooms with multimedia capabilities, a 456-seat auditorium, and a 250-plus seat multipurpose dining pavilion and activity space.

The world-class McColl Building is a hub of learning, teaching, and research. Each classroom, office, and study room is designed for maximum use and technological efficiency to support these activities. The building includes an asynchronous transfer mode (ATM) backbone network providing high-speed transmissions within the school and on the Internet, ports in many rooms that allow students to connect laptops from virtually anywhere in the building, a network operating at 100 megabits per second, a computer lab with state-of-the-art multimedia workstations, and network servers that provide students with online access to a number of CDs for company research and historical financial market data.

Scholarships and Fellowships

Available to doctoral students in business administration are a number of assistantships. The school provides summer assistantships for doctoral students who receive awards from the University or the school during the academic year. Once a doctoral student is awarded financial aid, the school generally provides support for ten semesters if the student is making satisfactory academic progress.

Master of Business Administration

The Kenan–Flagler Business School's highly ranked master of business administration (M.B.A.) program provides exceptional students with the opportunity to develop outstanding functional and analytical skills and the vision of a general manager. The two-year program combines a semester of core courses spread across two modules. The core courses are taken by all students and are designed to provide a general management background, technical and analytical expertise, and exposure to decision making in all functional areas of business. During a substantial part of the second semester of the first year and the entire second year, students have the opportunity to take elective courses to concentrate in their areas of professional interest.

The M.B.A, program is well recognized for shaping professionals who integrate abilities related to the science and heart of business, with the former centering on analytical and functional skills, and the latter on leadership, teamwork, and execution skills.

Application forms and a brochure containing detailed information may be obtained by contacting the Kenan–Flagler Business School M.B.A. Admissions Office (http://www.kenan-flagler.unc.edu/programs/mba), CB# 3490, McColl Building, The University of North Carolina at Chapel Hill, Chapel Hill, N.C. 27599-3490; (919) 962-3236; e-mail mba_info@unc.edu.

Master of Accounting (On-Campus and Online Formats)

The UNC Kenan–Flagler master of accounting (M.A.C.) program's (http://www.kenan-flagler.unc.edu/programs/master-of-accounting) unique approach to accounting and business education involves a challenging curriculum that integrates accounting with other business disciplines and emphasizes the application of accounting concepts to current business issues. The goal of the accounting and business courses is to create well-rounded accountants and business advisers who can compete in the business world. M.A.C. students take a broad but balanced series of accounting courses that focus on skill development, problem solving, and decision making in business situations. The core courses are designed specifically for M.A.C. students to emphasize accounting and business consulting skills. The program develops students' communication and leadership skills, giving them a competitive advantage in today's job market and enhancing their ability to succeed in the accounting profession.

The M.A.C. program is available in two formats: a flexible online format (http://www.kenan-flagler.unc.edu/programs/master-of-accounting/program-formats/online-accounting-at-unc) with a duration of 12 to 36 months, dependent on the student's desired pace, or a one-year, on-campus format (http://www.kenan-flagler.unc.edu/programs/master-of-accounting/program-formats/campus-mac). Both programs are open to students from any undergraduate major; however, students entering the on-campus format must have no more than 12 credits of previous accounting coursework. Students may start the online format in June, September, January, or March, while the on-campus format begins once a year in June. Admission is competitive and decisions are made on a rolling basis, so applicants are encouraged to apply early.

For more information, please contact the M.A.C. Admissions Office (http://www.kenan-flagler.unc.edu/programs/master-of-accounting), CB# 3490, McColl Building, The University of North Carolina at Chapel Hill, Chapel Hill, N.C. 27599-3490; (919) 962-3209; email mac_info@unc.edu.

The M.B.A. for Executives Programs

The M.B.A. for Executives Programs provide working professionals the opportunity to acquire the traditional M.B.A. degree without interrupting their careers. Kenan–Flagler offers three attendance options for completing the M.B.A. for Executives Programs.

The evening program classes are held on Monday and Thursday evenings for 24 months. This program is best suited for professionals who live and

work in the Triangle area and have careers that do not require frequent weekday travel.

The weekend program classes are held on alternate weekends (all day Friday and Saturday) for 20 months, with two mandatory weeklong residencies for intensive course work. This program is best suited for professionals who travel extensively or who live too far from Chapel Hill to make attending evening classes feasible.

OneMBA global program classes are held once a month on Friday, Saturday, and Sunday for 21 months. Most classes are held at Lansdowne Conference Center near Washington, DC, and Dulles International Airport. The OneMBA curriculum integrates perspectives and best business practices from developed and emerging economies, providing students the knowledge and connections needed to accelerate their global management careers. Global residencies are held in the United States, Europe, Latin America, and Asia.

Application forms and a brochure containing detailed information about the program may be obtained by contacting the M.B.A. for Executives Programs (http://www.kenan-flagler.unc.edu/programs/emba), Kenan–Flagler Business School, The University of North Carolina at Chapel Hill, CB# 3490, McColl Building, Suite 3100, Chapel Hill, N.C. 27599-3490; (800) 453-9515; e-mail emba@unc.edu.

Doctor of Philosophy

The Ph.D. program in business administration is designed for individuals who plan careers in research and teaching. A limited number of students are admitted each year, resulting in a high-quality learning environment that emphasizes rigor and personal attention. Although many students enter the program with an M.B.A., this degree is not a requirement for admission. However, an M.B.A. from an accredited institution usually allows the student to waive some of the business fundamentals requirements. Prior to admission to the doctoral program, students are expected to have knowledge of elementary calculus and basic computer skills. A foreign language is not required for graduation from the program. Research and teaching assistantships are available on a competitive basis.

The requirements for the Ph.D. in business administration are as follows:

- Business Fundamentals. All Ph.D. students are expected to possess or to acquire a basic knowledge of accounting, finance, marketing, organizational behavior, and production. This requirement involves a level of competence roughly equivalent to the M.B.A. core courses on these topics. Most students entering with an M.B.A. or similar degree meet this requirement without additional coursework. Appropriate courses will be recommended for students who do not meet this requirement prior to beginning the program.
- Economics. All Ph.D. students are expected to possess or to acquire knowledge of microeconomic and macroeconomic theory. The basic requirement is an M.B.A. or graduate-level course on each topic. Once again, most students with an M.B.A. meet this requirement without additional coursework. However, individual areas within the business school (e.g., finance) may require that students take specific courses after entering the program to meet this requirement. Appropriate courses will be recommended for students who do not meet this requirement prior to beginning the program.
- Research Methods/Quantitative Methodologies. All Ph.D. students are required to take five courses (15 hours) in research methods/quantitative methodologies. At least one course (three hours) must be a research methods course covering topics such as the philosophy of science, research design, sample selection, etc. At least three of the courses (nine hours) must focus on quantitative methodologies such as statistics, operations research, econometrics, etc. The fifth course (three hours) may be a more specialized research methods course (e.g., survey research, lab experimentation) or another quantitative methodologies course.
- Major Area of Concentration. All Ph.D. students are required to declare a major area. The major area consists of six courses (18 hours). Students may concentrate in one of the following areas:
  - Accounting
  - Operations
  - Finance
  - Organizational Behavior
  - Marketing
  - Strategy and Entrepreneurship

These courses may be a combination of required courses offered within the major area, required courses offered outside of the major area, or approved elective courses.

- Supporting Area. All Ph.D. students are required to declare a supporting area. The supporting area consists of four courses (12 hours). The supporting area allows the student to develop a strong expertise in an area related to the student's research and teaching interests. These courses are usually drawn from a single area within the business school or from a specific outside department, but a student may assemble four courses from more than one area if the courses represent a coherent package.
- Research Paper. During the summer and fall following the first year, all Ph.D. students are required to complete a research paper. The paper must be evaluated and approved by the student's faculty. The primary purpose of this paper is to provide the student with important research experience and to develop research and writing skills. Most of these papers are later presented at professional meetings, and many lead to publication. Some papers develop into dissertations.
- Comprehensive Examination. All Ph.D. students must pass a written comprehensive examination on the student's major area of concentration and on relevant material from the other requirements. Students usually take this examination after completing coursework, typically at the end of the second year. Some areas may require an oral examination after completion of the written examination.
- Dissertation. All Ph.D. students are required to complete a dissertation prior to graduation from the program. The dissertation is a thorough theoretical and empirical investigation of a specific problem important to the student's major area. The dissertation's value is in its contribution to knowledge, in the scholarly manner in which it is organized and presented, and in the demonstrated development of the student's conceptual and research skills. Before substantial work on the dissertation is undertaken, a written dissertation proposal must be presented and approved by the student's dissertation committee. In most cases, the dissertation proposal is completed during the student's third or fourth year in residence and the dissertation is completed during the fifth year.
- Teaching and Research. All students are required to serve as teaching assistants for at least one semester and as research assistants for at least one semester. Students are also required to work with faculty members prior to that semester on the development of their teaching skills.

MBA@UNC–Online MBA Program

Program Format

Through the use of innovative technologies and real-world immersion experiences, MBA@UNC blends the flexibility of an online program with the rigor and quality of an on-campus experience. MBA@UNC is structured so that faculty and classmates get to know one another in ways that shape the vibrant learning community that sets UNC Kenan–Flagler Business School apart.

World-Class Faculty and Curriculum

MBA@UNC leverages the same world-class faculty members who teach in UNC Kenan–Flagler Business School's other top-ranked M.B.A. programs, and the curriculum is based on the curriculum delivered in those programs.

MBA@UNC is designed to provide aspiring leaders with the strong general management and leadership curriculum required to propel them to the next level in their careers. Following a foundation of required core courses, MBA@UNC students can customize their studies by concentrating in one of six business disciplines.

Innovative Approach to Distance Learning

Each course is designed and delivered by a UNC Kenan–Flagler Business School professor and requires

- Preparation outside of class, including teamwork (texts, articles, cases, projects, papers). Outside class, students can create sessions in exactly the same way that a professor does and work together on the platform, seeing each other's faces, working collaboratively on documents, creating video presentations, working on simulations together, and so on.
- Lectures and delivery of new information (in an asynchronous format)
- Weekly virtual classes (in a synchronous format) in small groups (10 to 15 participants), led by faculty instructors (case discussions, role plays, breakout groups, and other discussions to drive learning)
- Quarterly three-day immersion weekends. Students are responsible for completing all coursework for the immersion weekends. Although they are only required to attend two over the duration of the program, we are finding that most students are attending as many as their schedules permit.

For information, write to the Kenan–Flagler Business School, The University of North Carolina at Chapel Hill, 1210 Environ Way, Chapel Hill, N.C. 27517. Phone: (888) 9UNC-MBA [(888) 986-2622]; e-mail OnlineMBA@unc.edu.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Sridhar Balasubramanian, Marketing
Barry L. Bayus (131), Marketing Research, Technology Changes, Product Management
Richard A. Bettis, Strategic Management, Global Competition, Technological Innovation, Strategic Change
Edward Joseph Blocher (61), Auditing, Management Accounting
Gregory W. Brown (07), Asset Pricing, Capital Markets, Derivative Securities, Investments, Mutual Funds, Risk Management, Corporate Hedging
Robert M. Bushman, Information Economics, Corporate Governance, Executive Compensation, Organizational Structure
Jennifer S. Conrad (107), Market Constraints, Stocks and Options
James W. Dean (158), Quality Management, Strategic Decision Making, Organizational Cynicism
Jeffrey R. Edwards (160), Person-Organization Fit, Work-Family Issues
Paolo Fulghieri, Finance
John R. M. Hand (126), Financial Accounting, Capital Markets, Market Efficiency
David James Hartzell (16), Mortgage Bank Securities, Real Estate Investment, Finance
David A. Hofmann, Management
James H. Johnson, Diversity, Entrepreneurship–Minority, Ethnic Conflict, Management, Small Business–Minority, Urban Economics, Venture Financing, Welfare Reform
Walter Steven Jones, Business Education
Wayne R. Landsman (58), Financial Reporting, Capital Markets
Mark H. Lang (142), International Accounting and Finance, Corporate Disclosure Policy, Earnings, Stock Price Issues
Christian Lundblad, Finance
Ann E. Marucheck (21), Production/Operations, Technology and Innovation Management, Distributions Systems Design and Management, Engineering Management
Edward Maydew, Accounting, Taxation, Corporate Tax Planning, Mergers and Acquisitions–Tax Aspects, Economic Effects of Tax Changes
Atul Nerkar, Strategy and Associate Dean of the Executive M.B.A. Program
Hugh M. O'Neill (131), Corporate Strategy, New Ventures, Turnaround Situations
William Daniel Perreault Jr. (62), Industrial Marketing, Marketing Research Methods, Marketing Strategy
William P. Putsis, Marketing
David J. Ravenscraft (10), Mergers, Takeovers, Sell-Offs
Albert H. Segars (152), Telecommunications Management, Impact of Technology, Corporate-Level Planning for Information Technology
Douglas A. Shackelford (101), Taxes, Business Strategy, Performance Measurement Systems
Anil Shivdasani (35), Corporate Boards of Directors, Corporate Finance, Corporate Governance, Finance, International Business–Finance, Mergers and Acquisitions, Organizations
J.B. Steenkamp, Marketing
Jayashankar M. Swaminathan, Operations, Technology and Innovation Management
Harvey M. Wagner (64), Management, Modeling
Valarie Zeithaml (169), Service Quality, Services Marketing

Associate Professors

Jeffery Abarbanell, Financial Statement Analysis, Analyst Forecasting, Valuation, Accounting in Transition-to-Market Economies
Christopher Bingham
Richard Stanley Blackburn (81), Organizational Behavior, Organizational Research Methods, Philosophy of Organizational Science
Robert A. Connolly (127), Foreign Currency Markets, Empirical Investments, Capital Markets
Nicholas Michael Didow (15), Consumer Behavior, Marketing Research Methods, Evaluation Research
Vinayak Deshpande
Alison Fragale, Organizational Behavior and Strategy
Diego Garcia
Katrijn Gielens, Marketing

Wendell Gilland (162), Production Planning and Control, Capacity Management, Business Process Reengineering
Mustafa N. Gültekin (106), Portfolio Theory, Asset Pricing Models, Corporate Finance
Eva Labro, Accounting
Arvind Malhotra, Electronic Commerce, Knowledge Management, Interorganizational Information Technology, Supply Chain Management, Internet Business Opportunities, Internet Startups, Strategic Use of Information Technology, Virtual Teams and Communities
Jacob Sagi
Jana Smith Raedy, Accounting
Adam V. Reed, Finance
Geoffrey Tate

Assistant Professors

Larry Chavis, Strategy and Entrepreneurship
Michael Christian, Organization Behavior
Riccardo Colacito, Finance
Mariano Croce, Finance
Dragana Cvijanovic
Sreedhari Desai, Organizational Behavior
David Dicks, Finance
Isaac Dinner
Noah Eisenkraft, Organizational Behavior
Nickolay Gantchev, Finance
Isin Guler, Strategy and Entrepreneurship
Bin Hu, Operations
Lisa Jones-Christensen, Strategy and Entrepreneurship
Chotibhak Jotikasthira, Finance
Eda Kemahlioglu-Ziya, Operations
Saravanan Kesavan, Operations
Dimitrios Kostamis, Operations
Venkat Kuppuswamy, Strategy and Entrepreneurship
Tarun Kushwaha, Marketing
Nandini Lahiri, Strategy and Entrepreneurship
Anh Le, Finance
Xiaoyuan Lu, Operations
Shimul Melwani, Organizational Behavior
Adam Mersereau, Operations
Paige Ouimet, Finance
Ali Parlakturk, Operations
Matthew Pearsall, Organizational Behavior
Andrew Petersen, Marketing
Scott Rockart, Strategy and Entrepreneurship
Amin Sayedi
Bradley Staats, Operations
Gunter Strobl, Finance
Stephen Stubben, Accounting
Edward Van Wesep, Finance
Sol Wang, Accounting
Kristin Wilson

Adjunct/Clinical Professors

Tamara Barringer, M.A.C. Program
Gerald D. Bell, Leadership, Management, Negotiation, Teamwork
Linda Carolyn Bowen (9), Financial Accounting, Taxation, Auditing
Peter Brews, Strategy
Douglas Allen Elvers (18), Production/Operations Management, Scheduling, Project Management
Pat Garner, Strategy and Entrepreneurship
Eric Ghysel, Finance
Noel Greis, Air Logistics, Aviation, Innovation, International Manufacturing, International Operations, Logistics, Manufacturing
Clay Hamner, Entrepreneurial Studies
James Harris, Finance
Patrick Hartley, Finance
Michael Hussey, Finance
Michael Jacobs, Finance
Andrew Jones, Center for Entrepreneurial Studies
Morgan Jones, Operations
Mabel M. Miguel (53), Career Development, Cross-Cultural Management, Diversity, Human Resource Management, International Human Resource Management, Distance Learning, Management
Leslie Morgan, Finance
Alan Neebe, Operations
Barry Stuart Roberts (63), Legal Studies, Business Ethics, Government Regulation
Heidi Schultz (167), Business Communication
C.J. Skender, Accounting, Auditing, Decision Making
Judy Jones Tisdale, Consumer Banking Retail Sales, Professional Communication, Sales Coaching and Development
Ronald Williams, Management

Adjunct/Clinical Associate Professors

Joseph Bylinski, Adjunct Associate Professor, Accounting
Sharon Cannon, Business Communications
Travis Day, Adjunct Associate Professor, Strategy
Tim Flood, Business Communication
Paul Friga, Adjunct Associate Professor, Strategy and Entrepreneurship
Patricia Harms, Business Communication
Claudia Kubowicz-Malhotra, Clinical Associate Professor, Marketing
Ted Zoller, Entrepreneurial Studies

Adjunct/Clinical Assistant Professors

Deborah Anderson, Center for Real Estate Development
Stephen Appold, Research Assistant Professor, Kenan Institute
Alex Arapoglou, Clinical Assistant Professor, Finance
Lynn Dikolli, Adjunct Assistant Professor, Accounting
Elizabeth Dickinson, Clinical Assistant Professor, Business Communications
Courtney Edwards, Clinical Assistant Professor, Accounting
Douglas Guthe, Finance
Corinne Krupp, Finance Trade, Antidumping Trade, Exchange Rates
Michael Meredith, Clinical Assistant Professor, Business Communications
David Roberts, Adjunct Assistant, Marketing
Carol Seagle, Strategy and Entrepreneurship
Mark Yusko, Finance
Patrick Vernon, Entrepreneurial Studies
Bill Weld, Clinical Assistant Professor, Finance

Lecturers

Alston Gardner, Entrepreneurial Studies
John Glushik, Entrepreneurial Studies
Andy Grubbs, Strategy and Entrepreneurship
Gregory Hohn, Senior Lecturer, Business Communications
Kellie McElhaney
Mark McNeilly, Marketing
Donald Marple, Management
Steve Miller, Center for Entrepreneurial Studies
Mitch Mumma, Management

David Neal, Organizational Behavior and Strategy
Shelby Pohlman, M.A.C. Program
Allen Prichard, Center for Real Estate Development
Maria Elena Rodriguez, Kenan Institute of Private Enterprise
Bob Slater, Center for Real Estate Development
Chip Snively, Sr., Lecturer, Finance
Karen Trott, M.A.C. Program
Courtney Wright, Business Communication

Professors of the Practice

Michael Jacobs, Finance
Charles Myer, Strategy

Professors Emeriti

Carl H. Anderson
Gary M. Armstrong
Jack N. Behrman
R. Lee Brummet
Dewitt Clinton Dearborn
Robert DesJardins
G. David Hughes
Thomas H. Jerdee
Jay Edward Klompmaker
Clifton Holland Kreps Jr.
Hans E. Krusa
Harold Q. Langenderfer
J. Finley Lee
Richard Levin
Richard Wolcott McEnally
Dannie Joseph Moffie
Jack Olin
John Pringle
Richard Rendelman
Benson Rosen
Aleda V. Roth
David Rubin
William S. Stewart
Junius H. Terrell
Rollie Tillman
Clay Whybark

BUSI

Advanced Undergraduate and Graduate-level Courses

BUSI 401. Management and Corporate Communication. 3 Credits.
Open to business majors. Writing- and speaking-intensive course that emphasizes professional communication. Provides opportunities to learn and apply the conventions and expectations for standard business documents and presentations. Features strategies for addressing informative, persuasive, and bad-news messages using a variety of media (print documents, electronic messages, and oral presentations).
Gen Ed: CI.
Grading status: Letter grade.

BUSI 402. Applied Microeconomics for Business. 2 Credits.
The course emphasizes the application of economic analysis to solve a range of practical business problems that fall into one of these broad categories. The course makes regular use of mathematics (elements of algebra, geometry, and calculus), and includes a solution of optimization problems using Excel. Students may not receive credit for both BUSI 402 and ECON 410.
Requisites: Prerequisite, ECON 101.
Grading status: Letter grade.

BUSI 403. Operations Management. 3 Credits.
Analysis of the operations functions in both manufacturing and service organizations. Formulating operational policies that improve efficiency and support high-level business strategy. Developing remedies that mitigate uncertainty and variability in operational processes.
Grading status: Letter grade.

BUSI 404. Business Ethics. 1.5 Credit.
An examination of ethical issues that affect business.
Grading status: Letter grade.

BUSI 405. Leading and Managing: An Introduction to Organizational Behavior. 3 Credits.
An introduction to leading and managing in organizations. Examines the impact of individual, group, and organizational factors on organizational performance and employee attitudes. Topics include leadership, perceptions, attitudes, motivation, group development, norms and cohesiveness, empowerment, conflict, negotiations, culture, structure, stress, innovation, and change.
Grading status: Letter grade.

BUSI 406. Marketing. 3 Credits.
Introduction to marketing with emphasis on the social and economic aspects of distribution, consumer problems, marketing functions and institutions, marketing methods and policies.
Grading status: Letter grade.

BUSI 407. Financial Accounting and Analysis. 3 Credits.
Students will acquire the tools to understand and analyze information presented in corporate financial statements. Financial accounting results and projected results are utilized in virtually every segment of the business world. Knowledge of financial accounting and analysis is necessary for managers, investors, bankers, financial analysts, and professional accountants.
Requisites: Pre- or corequisite, BUSI 102.
Grading status: Letter grade.

BUSI 408. Corporate Finance. 3 Credits.
Theoretical foundations of optimal financial policy. Problems and cases provide application of theory to financial decisions involving cash flow, capital structure, capital budgeting.
Requisites: Prerequisites, ECON 101, and one of BUSI 101, 102, or 107.
Grading status: Letter grade.

BUSI 409. Advanced Corporate Finance. 1.5 Credit.
A follow-up course to BUSI 408 that goes more deeply into the theory and application of financial management. Emphasis is placed on investment, financing, and dividend decisions. Honors version available
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 409H. Advanced Corporate Finance. 1.5 Credit.
A follow-up course to BUSI 408 that goes more deeply into the theory and application of financial management. Emphasis is placed on investment, financing, and dividend decisions.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 410. Business Analytics. 3 Credits.
While witnessing an explosion of data, most organizations tend to be awash with data but short on information. This course exposes students to techniques that will help them impact on an organization's strategy, planning, and operations, working on applications spanning a number of fields, including operations management, finance, and marketing.
Requisites: Prerequisite, STOR 155.
Grading status: Letter grade.

BUSI 411. Strategic Management at the Business Level. 1.5 Credit.
Students analyze sources of competitive success in business organizations using case analysis and written reports to develop analytical reasoning skills for assessing forward looking opportunities for the company. The emphasis is on industry analysis and organizational analysis and the development and management of firm specific competencies for successful growth.
Grading status: Letter grade.

BUSI 412. Strategic Management in the Modern Corporation. 1.5 Credit.
Students study the development of alternate forms of corporate-level diversification, with an emphasis on understanding the varied paths of corporate development. There is a focus on the challenges of integrating activities across diversified corporations and the tools to manage firms through the transitions that signal a change in strategy.
Requisites: Prerequisite, BUSI 411.
Grading status: Letter grade.

BUSI 463. Business and the Environment. 3 Credits.
This course explores the intersection of business/economic growth and the major sustainability issues affecting the environment and societal well-being and raises questions about business ethics and the moral responsibility of business leaders, consumers, and citizens. Previously offered as ENEC 306. Honors version available
Gen Ed: PH, CI.
Grading status: Letter grade
Same as: ENEC 463.

BUSI 463H. Business and the Environment. 3 Credits.
This course explores the intersection of business/economic growth and the major sustainability issues affecting the environment and societal well-being and raises questions about business ethics and the moral responsibility of business leaders, consumers, and citizens. Previously offered as ENEC 306.
Gen Ed: PH, CI.
Grading status: Letter grade
Same as: ENEC 463H.

BUSI 490. Business Topics. 1.5 Credit.
Varied topics in business administration. Honors version available
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 6 total completions.
Grading status: Letter grade.

BUSI 490H. Business Topics. 1.5 Credit.
Varied topics in business administration.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 6 total completions.
Grading status: Letter grade.

BUSI 493. Business Internship Project I. 3 Credits.
Permission of the department. With prior approval, a student may propose and complete an academic research project (paper and presentation) derived from an internship experience.
Gen Ed: EE- Academic Internship.
Grading status: Letter grade.

BUSI 496. Independent Study in Business. 1.5-3 Credits.
Permission of the department. Supervised individual study and research in the student's special field of interest.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 2 total completions.
Grading status: Letter grade.

BUSI 500. Entrepreneurship and Business Planning. 3 Credits.
Students gain an understanding of entrepreneurship and the tools and skills necessary to conceive, plan, execute, and scale a successful new venture. Students develop business ventures in teams through an experiential pedagogy. Honors version available
Grading status: Letter grade.

BUSI 500H. Entrepreneurship and Business Planning. 3 Credits.
Students gain an understanding of entrepreneurship and the tools and skills necessary to conceive, plan, execute, and scale a successful new venture. Students develop business ventures in teams through an experiential pedagogy.
Grading status: Letter grade.

BUSI 501. Professional Selling Strategies and Skills. 3 Credits.
Critical concepts and skills for selling products and services, and influencing others in business. Applicable to people considering sales or consulting as a career; to those thinking of starting an entrepreneurial company; or for those who want to understand how to influence peers, subordinates, and management.
Requisites: Prerequisite, BUSI 406.
Grading status: Letter grade.

BUSI 502. Entrepreneurial Finance. 1.5 Credit.
In this course students use financial tools and concepts in a real-world entrepreneurial setting. Working in assigned teams, students prepare a pitch book with financial projections for a company they wish to start or buy.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 503. Family Business I: Introduction to Family Enterprise. 1.5 Credit.
Helps the student understand the evolutionary stages in the life of a family business and the challenges and opportunities that must be managed at each stage
Grading status: Letter grade.

BUSI 504. Launching the Venture. 1.5 Credit.
This is a cross-campus course for exceptional students, staff, and faculty, designed to help launch UNC-Chapel Hill start-ups. Only for students serious about launching in the next nine to 12 months. Admission by online application. More information at www.launch.unc.edu.
Requisites: Prerequisite, BUSI 500.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 4 total completions.
Grading status: Letter grade.

BUSI 505. Consulting to Entrepreneurial Firms. 3 Credits.
Student teams engage in consulting projects to help a wide range of small business owners, early stage start-ups, and not-for-profit ventures tackle typical entrepreneurial challenges. Data is gathered through extensive fieldwork, such as client meetings, customer surveys, interviews with thought leaders, site visits, and product tests. Due to the heavy workload, students should not enroll in BUSI 505 and BUSI 554 concurrently.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

BUSI 506. Entrepreneurial Strategy: How to Think Like a Venture Capitalist. 3 Credits.
An entrepreneurial strategy class teaching students the tools and skills necessary to recognize startup opportunities. Local entrepreneurs come to class to pitch to students, who analyze the start-ups from the perspective of venture capitalists.
Requisites: Prerequisite, BUSI 411.
Grading status: Letter grade.

BUSI 507. Sustainable Business and Social Entrepreneurship. 3 Credits.
Examines what it means to pursue business success as measured by the triple-bottom line of people, planet, and profit. Focuses on strategies that companies implement to reduce environmental impact internally and through the supply chain. Examines the responsibility of business to employees, consumers, the local community, and society at large. Honors version available
Grading status: Letter grade.

BUSI 507H. Sustainable Business and Social Entrepreneurship. 3 Credits.
Examines what it means to pursue business success as measured by the triple-bottom line of people, planet, and profit. Focuses on strategies that companies implement to reduce environmental impact internally and through the supply chain. Examines the responsibility of business to employees, consumers, the local community, and society at large.
Grading status: Letter grade.

BUSI 511. Regional Venture Capital Immersion. 1.5 Credit.
Application-based course. This course gives a selected group of undergraduate students the opportunity to study venture capital by traveling to two different entrepreneurial regions of the United States, Europe, and/or Asia, with the goal of understanding how this subclass of private equity plays an integral role in the commercialization of disruptive technologies.
Requisites: Prerequisite, BUSI 506.
Grading status: Letter grade.

BUSI 512. Family Business II: Governance and Ownership. 1.5 Credit.
Recommended preparation, completion of BUSI 503. Helps the student understand specific ownership, stewardship, tax, transition, and wealth management issues that affect family enterprises.
Grading status: Letter grade.

BUSI 514. STAR. 4.5 Credits.
Student Teams Achieving Results (STAR) is a live management consulting project that leverages and integrates UNC Kenan-Flagler course curricula. Teams of five to seven M.B.A. and undergraduate students and one faculty member work with major corporations or not-for-profit entities to solve a major strategic issue. Honors version available
Requisites: Pre- or corequisite, BUSI 554.
Gen Ed: EE- Field Work.
Repeat rules: May be repeated for credit. 9 total credits. 2 total completions.
Grading status: Letter grade.

BUSI 514H. Star. 4.5 Credits.
Student Teams Achieving Results (STAR) is a live management consulting project that leverages and integrates UNC Kenan-Flagler course curricula. Teams of five to seven M.B.A. and undergraduate students and one faculty member work with major corporations or not-for-profit entities to solve a major strategic issue.
Requisites: Pre- or corequisite, BUSI 554.
Gen Ed: EE- Field Work.
Repeat rules: May be repeated for credit. 9 total credits. 2 total completions.
Grading status: Letter grade.

BUSI 517. Private Equity and Debt Markets. 1.5 Credit.
The objective of this course is to examine the changing world of private equity investments today. This is a survey course and will help prepare you to work for private equity and venture capital funds or to work for investment banks.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 518. Applied Private Equity. 3 Credits.
Permission of the instructor. Explores, at a very advanced level, all stages of the management of a venture capital and private equity fund, from capital formation, deal sourcing, due diligence, monitoring and adding value, and exiting of a portfolio company. Honors version available
Requisites: Prerequisites, BUSI 502 and 517.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

BUSI 518H. Applied Private Equity. 3 Credits.
Permission of the instructor. Explores, at a very advanced level, all stages of the management of a venture capital and private equity fund, from capital formation, deal sourcing, due diligence, monitoring and adding value, and exiting of a portfolio company.
Requisites: Prerequisites, BUSI 502 and 517.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

BUSI 520. Advanced Spreadsheet Modeling for Business. 3 Credits.
Primarily an online class. Use critical thinking and advanced Excel features to create spreadsheet models of common business problems. Topics include flexible design, problem solving, statistical analysis, charting, logic, reference functions, financial analysis, organizing data for complex analysis, what-if analysis, enhanced decision-making tools, troubleshooting workbooks, and VBA.
Grading status: Letter grade.

BUSI 521. Design Thinking: The Innovation Process for Complex Problems. 3 Credits.
The class teaches real world innovation -- creativity, improvisation, and design thinking -- through experiential learning and iterative project-based learning. Students will develop fluency in 21st century skills. These include storytelling, logo development, website design, video editing, audio and podcast editing, budgeting, postcard and flyer design, etc. In addition, students will discuss key innovations that will likely change their careers and lives: artificial intelligence, gene editing, autonomous vehicles, etc.
Grading status: Letter grade.

BUSI 524. Applied Improvisation for Business Communication. 3 Credits.
Focuses on improving students' soft skills, such as presenting, expressiveness, and interviewing, by applying the principles and techniques of improvisational theater. Participants explore creativity, adaptation, awareness, self-confidence, risk taking, physicality, intuition, and teamwork. Students can stretch their abilities and discover things about themselves and others that are crucial to success.
Grading status: Letter grade.

BUSI 525. Advanced Business Presentations. 1.5 Credit.
This course is grounded in argument, persuasion, and visual rhetoric to give students skills needed to develop winning presentations. Students learn strategies to help their messages "stick" with their audiences and to develop slide decks for the boardroom and advanced media devices. The course emphasizes efficiency in presentation preparation.
Requisites: Prerequisite, BUSI 401.
Grading status: Letter grade.

BUSI 526. Leadership in Action. 3 Credits.
Permission of the department. Provides student leaders with practical leadership frameworks and tools; creates opportunities to apply these on the job as leaders; and provides individualized coaching, feedback, and mentoring. This is an applied learning course taught by a seasoned practitioner designed to accelerate each student's development and growth.
Grading status: Letter grade.

BUSI 527. Gender Issues in the Workplace. 1.5 Credit.
Gender is a relevant subject in all professions. Research shows that recruiting, developing, and keeping diverse employees, leaders, and managers can benefit individuals, organizations, and societies. Students will learn to think critically about gender and become informed leaders helping organizations and society to address gender topics.
Grading status: Letter grade.

BUSI 528. Leadership Communication. 1.5 Credit.
This course provides students opportunities to practice and develop communication skills that will help them make an impact on the job and further their careers. Students will work to improve interpersonal and presentation skills related to navigating difficult interpersonal challenges, resolving conflicts, tackling difficult discussion topics, giving and receiving feedback, communicating with respect in diverse environments, listening, and networking.
Grading status: Letter grade.

BUSI 529. Intercultural Communication in the Global Workplace. 1.5 Credit.
Developing patterns of respectful intercultural communication is an increasingly important goal for the growth of business across the globe. This class will examine interesting and problematic issues surrounding cross-cultural communication, help students understand the complexity and variety of cultures, and teach communication strategies for success in conducting business across diverse cultures.
Grading status: Letter grade.

BUSI 532. Service Operations. 3 Credits.
Studies key challenges in effective service delivery through the analysis of staffing and scheduling, customer waiting, and revenue management. Case studies illustrate examples of effective service design and delivery in various service industries including professional services, banking, health care, hospitality, and entertainment. A simulation project is used.
Honors version available
Requisites: Prerequisite, BUSI 403.
Grading status: Letter grade.

BUSI 532H. Service Operations. 3 Credits.
Studies key challenges in effective service delivery through the analysis of staffing and scheduling, customer waiting, and revenue management. Case studies illustrate examples of effective service design and delivery in various service industries including professional services, banking, health care, hospitality, and entertainment. A simulation project is used.
Requisites: Prerequisite, BUSI 403.
Grading status: Letter grade.

BUSI 533. Supply Chain Management. 3 Credits.
Analyzes the key drivers of supply chain performance including inventories, transportation, information technology, and sourcing. Studies strategies for supply chain coordination, and challenges and opportunities in global supply chains. A supply chain simulation is used.
Honors version available
Requisites: Prerequisite, BUSI 403.
Grading status: Letter grade.

BUSI 533H. Supply Chain Management. 3 Credits.
Analyzes the key drivers of supply chain performance including inventories, transportation, information technology, and sourcing. Studies strategies for supply chain coordination, and challenges and opportunities in global supply chains. A supply chain simulation is used.
Requisites: Prerequisite, BUSI 403.
Grading status: Letter grade.

BUSI 534. Business Modeling with Excel. 3 Credits.
Provides a broad scope of analytic experience across corporate functions that is beneficial in consulting environments. A student may not receive credit for this course after receiving credit for STOR 305.
Grading status: Letter grade.

BUSI 536. Project Management. 1.5 Credit.
Permission of the department. This course prepares students to take part in and lead projects effectively. The goal is to equip individuals across any career concentration rather than extend the expertise of project-management specialists. Students may not receive credit for both BUSI 536 and MBA 710.
Requisites: Prerequisite, BUSI 403.
Grading status: Letter grade.

BUSI 537. Retail Operations. 1.5 Credit.
Permission of the department. Examines developments in retailing and operations management principles applicable to these developments. Topics: consumer behavior, demand forecasting, logistics and distribution, store execution, international retailing, internet-based retailing, performance assessment, and impact on financial performance. Students may not receive credit for both BUSI 537 and MBA 708.
Requisites: Prerequisite, BUSI 403.
Grading status: Letter grade.

BUSI 538. Sustainable Operations. 1.5 Credit.
This course explores the link between sustainability and the operations function of a firm. The course focuses on the following activities: product and process design; manufacturing; transportation; logistics and distribution; closed-loop/after-sales operations such as recycling, remanufacturing, and reuse; supply chain management.
Requisites: Prerequisite, BUSI 403.
Grading status: Letter grade.

BUSI 539. Health Care Operations. 1.5 Credit.
Permission of the department. Students apply principles and tools of operations management to explore improvement opportunities in the design, delivery, and management of the health care value chain. The course examines the health care operation from the perspective of operations metrics such as cost, quality, time (access), and variety/customization.
Requisites: Prerequisite, BUSI 403.
Grading status: Letter grade.

BUSI 545. Negotiations. 1.5 Credit.
This course enables students to develop their expertise in managing negotiations. It integrates existing theory and research with personal experiences and ideas. Using hands-on exercises, readings, and lively discussions, students build and hone their ability to understand, adapt to, and evaluate the personal, social, and situational dynamics of negotiations.
Requisites: Prerequisite, BUSI 405.
Grading status: Letter grade.

BUSI 546. Sport Marketing and Media. 1.5 Credit.
This course provides an in-depth analysis of the effect of marketing and media on the sport industry. Key issues include the increasing growth of television and technological advances, changing consumer demographics and behaviors, and sponsorship relations. The course will be divided into three key areas: rights holders, media, and corporate sponsorship (brands).
Grading status: Letter grade.

BUSI 547. Managerial Decision Making. 1.5 Credit.
Behavioral economics provides an understanding of how people's decisions deviate from "optimal" choices and consequences of such deviations. This course will not only discuss when individuals make decisions that deviate from the predictions of economics, but also focus on the implications of these systematic decision biases for managers and policy makers.
Requisites: Prerequisite, BUSI 405.
Grading status: Letter grade.

BUSI 552. Strategic Innovation. 1.5 Credit.
This course is designed for undergraduate business students interested in innovation and entrepreneurship inside established firms. It focuses on the art of bringing novel ideas and products to market while working inside a company. This course will help you understand the barriers to innovation inside existing firms, learn the tools and techniques for overcoming these, and develop an entrepreneurial mindset.
Grading status: Letter grade.

BUSI 554. Consulting Skills and Frameworks. 3 Credits.
Permission of the instructor. The course is dedicated to teaching the core skills for success in consulting and business in general: teamwork, analysis, and presentations. Honors version available
Requisites: Pre- or corequisite, BUSI 408.
Grading status: Letter grade.

BUSI 554H. Consulting Skills and Frameworks. 3 Credits.
Permission of the instructor. The course is dedicated to teaching the core skills for success in consulting and business in general: teamwork, analysis, and presentations.
Requisites: Pre- or corequisite, BUSI 408.
Grading status: Letter grade.

BUSI 555. Groups and Teams in Organizations. 1.5 Credit.
Examines the design, management, and leadership of teams in organizational settings. Focus is on the interpersonal processes and structural characteristics that influence the effectiveness of teams, individual behavior in face-to-face interactions, and the dynamics of interpersonal relationships.
Requisites: Prerequisite, BUSI 405.
Grading status: Letter grade.

BUSI 558. Digital Marketing. 3 Credits.
The main concepts of marketing are identifying market opportunity (3C analysis), setting the target strategy (STP analysis) and implementation via 4P strategies. This course will discuss online consumer behavior; internet marketing strategy; online and digital advertising; social media. It will focus on strategic perspective, rather than on technical details.
Requisites: Prerequisite, BUSI 406.
Grading status: Letter grade.

BUSI 562. Consumer Behavior. 3 Credits.
Review of conceptual models and empirical research in consumer behavior. Topics include decision processes, social and cultural influences, information processing, and ethical issues.
Requisites: Prerequisite, BUSI 406.
Grading status: Letter grade.

BUSI 563. Retailing and Distribution Channels. 1.5 Credit.
Examines the supply chain for retail businesses and management decision making in retailing.
Requisites: Prerequisite, BUSI 406.
Grading status: Letter grade.

BUSI 564. New Product Development. 3 Credits.
The course concentrates on the fuzzy front end of the innovation process, focusing on tools and techniques to uncover consumer insights (needs). The design thinking process is emphasized as part of a semester-long team project. Other topics explored include creativity, intellectual property basics, prototyping, and Innovation 2.0.
Requisites: Prerequisite, BUSI 406.
Grading status: Letter grade.

BUSI 566. Marketing Strategy. 3 Credits.
The objective of this course is to understand and practice the strategic decision-making process in a dynamic competitive environment. The course builds on the foundations of marketing, and is based on lectures, cases, and computer simulations.
Requisites: Prerequisite, BUSI 406.
Grading status: Letter grade.

BUSI 568. Marketing Analysis and Decision Making. 1.5 Credit.
Marketing analytics is a systematic approach to harnessing these data to drive effective marketing decision making. We will learn to analyze historical data, market research data, and competitive information for making strategic marketing decisions. This course will be extensively based on case analysis and hands-on exercises.
Requisites: Prerequisites, BUSI 406 and 410.
Grading status: Letter grade.

BUSI 572. Business Taxation. 1.5 Credit.
Permission of the department. Required in spring semester for senior B.S.B.A.s who are admitted to the Kenan-Flagler Master of Accounting Program. Provides students with an initial understanding of the basic framework of the United States income tax system as it applies to businesses.
Requisites: Prerequisite, BUSI 570.
Grading status: Letter grade.

BUSI 574. Taxes and Business Strategy. 3 Credits.
This course covers high-level topics related to tax planning that are relevant to future CEOs, CFOs, investment bankers, equity analysts, and marketing consultants. In this course, students will understand how taxes interact with other fields such as finance, accounting, law, marketing, human resources and compensation, operation management, risk management, etc.
Requisites: Prerequisite, BUSI 407.
Grading status: Letter grade.

BUSI 580. Investments. 3 Credits.
A survey of investment principles and practices. Emphasis is given to the problems of security analysis and portfolio management with special attention to the investment problems of the individual investor. Honors version available
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 580H. Investments. 3 Credits.
A survey of investment principles and practices. Emphasis is given to the problems of security analysis and portfolio management with special attention to the investment problems of the individual investor.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 582. Mergers and Acquisitions. 3 Credits.
Through lectures, case studies, and guest speakers, this course will cover all aspects of mergers and acquisitions from strategy to post-merger integration with an emphasis on valuation. Related activities such as hostile takeovers, private equity deals, and international acquisitions will also be discussed. Honors version available
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 582H. Mergers and Acquisitions. 3 Credits.
Through lectures, case studies, and guest speakers, this course will cover all aspects of mergers and acquisitions from strategy to post-merger integration with an emphasis on valuation. Related activities such as hostile takeovers, private equity deals, and international acquisitions will also be discussed.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 583. Applied Investment Management. 3 Credits.
Permission of the department. Year-long course. A live, student-managed investment fund with real dollars and fiduciary responsibility to the UNC Foundation. Emphasis is on the decisions that must be made by and/or for the ultimate investor and the analytic tools and empirical evidence that can help inform such decisions. Honors version available
Requisites: Prerequisites, BUSI 407 and 408.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

BUSI 583H. Applied Investment Management. 3 Credits.
Permission of the department. Year-long course. A live, student-managed investment fund with real dollars and fiduciary responsibility to the UNC Foundation. Emphasis is on the decisions that must be made by and/or for the ultimate investor and the analytic tools and empirical evidence that can help inform such decisions.
Requisites: Prerequisites, BUSI 407 and 408.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

BUSI 584. Financial Modeling. 3 Credits.
Skill development in constructing financial models for analyzing problems with decisions faced by financial professionals. Analyzing historical performance, forecasting free cash flows, estimating discount rates, determining terminal value, identifying other sources of value, and interpreting results in a dynamic setting.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 585. Introduction to Real Estate. 3 Credits.
An overview of residential and commercial real estate. This survey course examines 1) buying a house and constructing a portfolio of single-family rental houses, 2) commercial real estate product types, 3) amortization, cash flows, capital expenditures, cap rates, debt and equity, hurdle rates and taxes, 4) investment analysis, 5) acquisition, development, operation, and disposition, 6) real estate and contract law, and 7) the partnership negotiation process.
Grading status: Letter grade.

BUSI 586. Personal Finance. 1.5 Credit.
Introduces and broadens the concept of personal finance and increases understanding of the process of accumulating and protecting personal wealth. Students learn to identify and analyze risk and return relationships, understand investment alternatives and how strategies develop as life situations mature, and gain understanding of retirement planning and effectively transferring wealth.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 587. Investment Banking. 1.5 Credit.
This course prepares students for investment banking positions and internships. The focus of the class is on financial modeling, general knowledge of banking, and what it takes to succeed in the industry. Permission of the instructor and confirmed offer of investment banking analyst internship or full-time job. Honors version available
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 587H. Investment Banking. 1.5 Credit.
This course prepares students for investment banking positions and internships. The focus of the class is on financial modeling, general knowledge of banking, and what it takes to succeed in the industry. Permission of the instructor and confirmed offer of investment banking analyst internship or full-time job.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 588. Introduction to Derivative Securities and Risk Management. 1.5 Credit.
Introduction to derivative securities instruments (options and futures) and applications in investments and corporate finance. Honors version available
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 588H. Introduction to Derivative Securities and Risk Management. 1.5 Credit.
Introduction to derivative securities instruments (options and futures) and applications in investments and corporate finance.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 589. Fixed Income. 1.5 Credit.
The course covers traditional bonds and term structure concepts as well as fixed income derivatives and interest rate modeling. Honors version available
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 589H. Fixed Income. 1.5 Credit.
The course covers traditional bonds and term structure concepts as well as fixed income derivatives and interest rate modeling.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 590. Business Seminar. 3 Credits.
Selected topics in business administration presented in seminar format with students engaged in individual and team study under the supervision of a member of the faculty. Honors version available
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

BUSI 590H. Business Seminar. 3 Credits.
Selected topics in business administration presented in seminar format with students engaged in individual and team study under the supervision of a member of the faculty.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

BUSI 591. Behavioral Finance. 1.5 Credit.
Completion of BUSI 409 recommended. An abundance of evidence suggests that the standard economic paradigm, "rational agents in an efficient market," does not adequately describe behavior in financial markets. This course will survey the evidence and use psychology to guide alternative theories of financial markets. Honors version available
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 591H. Behavioral Finance. 1.5 Credit.
Completion of BUSI 409 recommended. An abundance of evidence suggests that the standard economic paradigm, "rational agents in an efficient market," does not adequately describe behavior in financial markets. This course will survey the evidence and use psychology to guide alternative theories of financial markets.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 592. Applied Private Equity: Real Estate. 3 Credits.
Permission of the instructor. This course explores, at a very advanced level, all stages of the management of a real estate private equity fund: from capital formation, deal sourcing, due diligence, monitoring and adding value, and exiting of the fund's real estate holdings.
Requisites: Prerequisites, BUSI 408, BUSI 601 and 603.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

BUSI 593. Business Internship Project II. 3 Credits.
Permission of the department. This course provides students with a format for reflection while performing a professional internship that enhances their ability to achieve career objectives.
Gen Ed: EE- Academic Internship.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

BUSI 598. Alternative Investments. 1.5 Credit.
Permission of the instructor. Open to seniors only. Exposes students to the benefits, opportunities, and risks of incorporating alternative investments into managed institutional investment portfolios, including pension funds, endowments, and foundations.
Requisites: Prerequisites, BUSI 408, and 580 or 588.
Grading status: Letter grade.

BUSI 600. Risk Management. 1.5 Credit.
Develops methods for applied analysis of financial and operational risk. The course covers statistical methods of risk measurement such as value-at-risk. In addition, the course covers methods for designing and evaluating risk management procedures at both financial and non-financial companies. The course includes several guest lectures from senior managers.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 601. Real Estate Finance. 1.5 Credit.
This course will focus on the different ways to finance real property, and how different financing techniques impact the feasibility and investment benefits for equity investors. Honors version available
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 601H. Real Estate Finance. 1.5 Credit.
This course will focus on the different ways to finance real property, and how different financing techniques impact the feasibility and investment benefits for equity investors.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 602. Strategic Economics. 1.5 Credit.
This course focuses on decision making in the presence of strategic interaction. Students will apply game theory to yield insights into business decisions. Topics covered include pricing, entry, product market competition, first-mover advantage, capital budgeting, antitrust law, corporate governance, auctions, and mergers.
Grading status: Letter grade.

BUSI 603. Real Estate Development. 1.5 Credit.
This course is designed to introduce undergraduate students to the financial and economic analysis of real estate development. The course will focus on both the physical and financial dimensions of the real estate development process. The course considers multiple asset classes, and students learn to complete financial analysis of real estate development projects.
Requisites: Prerequisite, BUSI 408;Corequisite, BUSI 585.
Grading status: Letter grade.

BUSI 604. Real Estate and Capital Markets. 1.5 Credit.
Introduces students to the capital markets for financing real estate assets. Topics include an overview of real estate as an asset class in the US economy, risk and return in real estate markets, the economics of discount and capitalization rates, the market for mortgage-backed securities (with a peek into the role that these instruments played in the recent financial crisis), and the valuation/analysis of Real Estate Investment Trusts (REITs). Honors version available
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 604H. Real Estate and Capital Markets. 1.5 Credit.
Introduces students to the capital markets for financing real estate assets. Topics include an overview of real estate as an asset class in the US economy, risk and return in real estate markets, the economics of discount and capitalization rates, the market for mortgage-backed securities (with a peek into the role that these instruments played in the recent financial crisis), and the valuation/analysis of Real Estate Investment Trusts (REITs).
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 606. Buyout Structures and Deals. 1.5 Credit.
It improves students understanding of how private equity firms evaluate risk/reward, create value in LBO transactions, and explores the role of private equity in the financial markets and corporate boardroom. Students will develop a better understanding of the decisions private equity firms face; covering challenges in going-private and private-to-private transactions, use of leveraged finance for LBOs and dividend recapitalizations.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 607. Capital Markets: Institutions, Players, and Regulators. 1.5 Credit.
It will cover the "plumbing" infrastructure that supports the investment management industry by providing a "nuts and bolts" examination of the interrelationships among market participants, their functions, and the rationale and mechanics of how information flows among investment entities. For students interested in a career in the investment industry.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 610. Global Environment of Business. 3 Credits.
Issues in operating overseas, including analyses of differences in country settings, legal and economic systems, and governmental policies affecting foreign operations. Studies trade theory, country groupings, and financial issues; managing operations in foreign lands; exporting.
Gen Ed: GL.
Grading status: Letter grade.

BUSI 611. International Development. 3 Credits.
Poverty is part of life for most of the world's population, with half living on less than two dollars a day. Course focuses on understanding this from a business school perspective. Looks at institutional failures that contribute to persistent poverty and the multiple roles managers can play in reducing poverty.
Gen Ed: GL.
Grading status: Letter grade.

BUSI 617. Global Marketing. 3 Credits.
Examination of the problems involved in marketing products and services across national boundaries. Problem issues include culture, ideology, economics, technical standards, and currency movements.
Requisites: Prerequisite, BUSI 406.
Gen Ed: GL.
Grading status: Letter grade.

BUSI 618. Global Financial Markets. 1.5 Credit.
Develops the foundation for financial decisions in a global economic environment. Extends the analytical concepts and tools learned in introductory investment and corporate finance courses to multicountry/multicurrency settings. Covers three major areas: the economics of exchange rates, international money and capital markets, and international corporate finance.
Requisites: Prerequisite, BUSI 408.
Grading status: Letter grade.

BUSI 623. Global Entrepreneurship I. 1.5 Credit.
The course ranges from developing the creative mindset, ideation, development/manufacturing, marketing, selling, and managing. The course places heavy emphasis on doing and collaborating rather than listening passively: 1) dream: design process, 2) think: feasibility, 3) create: product development and manufacturing, and 4) tell: marketing. Restricted to GLOBE students.
Grading status: Letter grade.

BUSI 624. GLOBE Entrepreneurship Immersion. 1.5 Credit.
The immersion exposes students to the process of founding and funding new entrepreneurial ventures through direct experience with leaders in the field. It is divided between leaders who support the development of early stage entrepreneurial firms and those who capitalize these ventures in seed, venture capital, and private equity. We will be supplementing these visits with a number of events derived from Chicago Ideas Week.
Grading status: Letter grade.

BUSI 625. Global Healthcare Management. 1.5 Credit.
This course will provide students with an overview of numerous global healthcare topics. Students will learn about macro global healthcare issues, country-specific healthcare systems, healthcare interdependencies between regions and countries, global healthcare business strategies and solutions. The course will examine innovative global business models focused on analyzing the cost, access, and quality of healthcare around the globe.
Grading status: Letter grade.

BUSI 650. Symposium Core Committee. 1.5-3 Credits.
Permission of the instructor. Service on the B.S.B.A. Symposium Core Committee to plan, execute, and evaluate the annual event.
Gen Ed: EE- Field Work.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 3 total completions.
Grading status: Letter grade.

BUSI 653. Applied Learning: Symposium Core Committee. 1.5 Credit.
Permission of the department. This course is by invitation only to students who previously served on the Undergraduate Business Symposium core committee. As senior advisors, students practice the leadership, organization, delegation, communication, and teamwork skills that they learn about in their other courses.
Repeat rules: May be repeated for credit. 3 total credits. 2 total completions.
Grading status: Letter grade.

BUSI 688. Applied Trading Strategies. 1.5 Credit.
This seminar style course develops a set of financial tools useful for trading primary and derivative securities with the goal of obtaining specific exposures in equity, fixed income, and commodity markets. The course examines methods for managing financial price risk of positions and how hedge funds use derivatives in practice. Honors version available
Requisites: Prerequisites, BUSI 408 and 588.
Grading status: Letter grade.

BUSI 688H. Applied Trading Strategies. 1.5 Credit.
This seminar style course develops a set of financial tools useful for trading primary and derivative securities with the goal of obtaining specific exposures in equity, fixed income, and commodity markets. The course examines methods for managing financial price risk of positions and how hedge funds use derivatives in practice.
Requisites: Prerequisites, BUSI 408 and 588.
Grading status: Letter grade.

BUSI 691H. Honors Research Proposal. 3 Credits.
Permission of the department. Open to senior business administration majors with a minimum 3.5 grade point average in business courses. Students learn business research techniques and develop individual proposals for business research. Successful proposals may advance to honors thesis research and writing (BUSI 692H).
Grading status: Letter grade.

BUSI 692H. Honors Thesis. 3 Credits.
Permission of the department. Open to senior business majors with a minimum 3.5 grade point average in business courses. Original investigation of a topic in business and preparation of a substantive research project under the direction of a faculty advisor. Written essay and oral presentation are required.
Requisites: Prerequisite, BUSI 691H.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

BUSI 701. Artistic Entrepreneurship. 3 Credits.
This course is a study in entrepreneurship and the specific challenges faced by artistic entrepreneurs.
Grading status: Letter grade.

BUSI 702. Introduction to Social Entrepreneurship. 1-3 Credits.
An overview of how entrepreneurship is transforming students' fields and disciplines and how the application of principles of entrepreneurship may be used to advance their professional objectives
Grading status: Letter grade.

BUSI 703. Introduction to Commercial Entrepreneurship. 1-3 Credits.
A cross-disciplinary curriculum that brings together the core field with the wide-ranging literature in entrepreneurship to seek new approaches to traditional problems.
Grading status: Letter grade.

BUSI 704. Entrepreneurship Capstone. 1-3 Credits.
Capstone project, business plan, or paper that links the work done in the certificate to the field it is intended to complement.
Requisites: Prerequisites, BUSI 701, 702, and 703.
Grading status: Letter grade.

BUSI 705. Entrepreneurship Capstone Project. 1.5-3 Credits.
This Graduate Certificate in Entrepreneurship capstone project is self-paced, and overseen by the faculty director of each track (life sciences, public health, and artistic).
Grading status: Letter grade.

BUSI 801. Independent Study. 1-9 Credits.
Independent study intends to extend a student's learning beyond the classroom or allows a student the opportunity to explore a topic not offered in a traditional format.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

BUSI 808. Applied Research Methods I. 3 Credits.
Addresses fundamentals of empirical social science research. Topics include framing a research question, comparing research designs, instrumentation, reliability, validity, and exploratory and confirmatory factor analysis. Emphasizes application and analysis.
Grading status: Letter grade.

BUSI 809. Applied Research Methods II. 3 Credits.
Continuation of BUSI 808. Topics include statistical control, categorical variables, interaction, curvilinear and similarity effects, longitudinal analysis, path analysis, structural equation modeling, and publication. Emphasizes application and analysis.
Grading status: Letter grade.

BUSI 810. Empirical Operations. 3 Credits.
Required preparation, working knowledge of probability, statistics, and regression. The course prepares students to perform academic research, and it will be conducted in a manner that simulates an academic research conference. The course will focus on empirical research approaches used in solving many classical problems in operations management.
Grading status: Letter grade.

BUSI 830. Theory of Operations Management I. 3 Credits.
Permission of the instructor. Rigorous study of traditional and modern issues, problems, and approaches in operations management.
Grading status: Letter grade.

BUSI 831. Theory of Operations Management II. 3 Credits.
A continuation of BUSI 830.
Requisites: Prerequisite, BUSI 830.
Grading status: Letter grade.

BUSI 832. Theory of Operations Management III. 3 Credits.
A continuation of BUSI 830.
Requisites: Prerequisite, BUSI 830.
Grading status: Letter grade.

BUSI 837. Advanced Topics in Operations Management. 3 Credits.
Permission of the instructor. Intensive study of a specific area in operations management.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

BUSI 838. Seminar in Operations Management. 3 Credits.
Permission of the instructor. Intensive study of a specific area in operations management.
Grading status: Letter grade.

BUSI 851. Individual Behavior in Organizations. 3 Credits.
Analysis of individual behavior, adjustment, and effectiveness. Examination of attitudes, stress, problem solving, decision making, motivation, and personality. Applications to management of human resources.
Grading status: Letter grade.

BUSI 852. Interpersonal and Intergroup Behavior in Business Organizations. 1-3 Credits.
Intensive critical examination of interpersonal and intergroup behavior, including decision processes, communication, conflict, and conflict resolution in large organizations.
Grading status: Letter grade.

BUSI 853. Macro Organizational Behavior. 3 Credits.
Graduate standing in business administration required. Intensive study of theory and research in organizational structure, coordinating and control mechanisms, design parameters, and environments.
Grading status: Letter grade.

BUSI 854. Organizational Design and Development. 3 Credits.
The development of understanding and skills in changing and evolving organizational design, interpersonal relationships, and people to achieve organizational goals.
Grading status: Letter grade.

BUSI 856. Seminar in Organizational Behavior. 3 Credits.
Permission of the instructor. Intensive study of important current theory and research in organizational behavior.
Grading status: Letter grade.

BUSI 857. Seminar in Human Resource Management. 3 Credits.
Review the research literature on how firms are made more effective through their people. Coverage includes topics like recruitment, hiring, compensation, socialization, culture, and performance management.
Grading status: Letter grade.

BUSI 858. Special Topics in Organizational Behavior. 3 Credits.
BUSI 858 is a second doctoral course in organizational behavior, meant to be taken after completing BUSI 851: Individual Behavior in Organizations. While BUSI 851 gave an overview of many important topics in organizational behavior, the field is too broad to be covered, in depth, with a single class. The goal of this course is to introduce developing scholars to the history and current status of important topics in organizational behavior. This course is intended for developing scholars who intend to pursue academic careers.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

BUSI 860. Seminar in Marketing I. 3 Credits.
Permission of the instructor. Overview of current paradigms and research in marketing. Topics include philosophy of science, differing views of what marketing is, strengths and weaknesses of various research approaches, and career socialization issues.
Grading status: Letter grade.

BUSI 861. Seminar in Marketing II. 3 Credits.
Intensive study of the empirical and analytical literature involving problems in pricing, product development and management, advertising and promotion, distribution, and strategy.
Requisites: Prerequisite, BUSI 860.
Grading status: Letter grade.

BUSI 862. Marketing Models. 3 Credits.
This class covers a range of econometric principles and models of relevance to marketing. The emphasis will be on model formulation and estimation.
Grading status: Letter grade.

BUSI 865. Seminar in Current Marketing Topics. 1 Credit.
Permission of the instructor. Advanced research in marketing. A seminar to discuss current research of doctoral candidates, faculty, and invited guests.
Grading status: Letter grade.

BUSI 867. Issues in the Design and Analysis of Research in Marketing. 3 Credits.
Graduate standing in business administration required. A review of major issues in marketing, including philosophy of science, measurement, and experimental and quasi-experimental design.
Grading status: Letter grade.

BUSI 868. Seminar in Marketing Research Methodology. 3 Credits.
Permission of the instructor. An introduction to multivariate data analysis methods including factor analysis, cluster analysis, logic, discriminant analysis and multidimensional scaling.
Grading status: Letter grade.

BUSI 876. Seminar in Research in Accounting. 1 Credit.
Permission of the instructor. An informal seminar to discuss current research in accounting.
Grading status: Letter grade.

BUSI 880. Financial Economics. 3 Credits.
Permission of the instructor. Introduction to the theories of asset pricing.
Grading status: Letter grade.

BUSI 881. Corporate Finance. 1-6 Credits.
Introduction to corporate finance theory.
Requisites: Prerequisite, BUSI 880; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

BUSI 882. Empirical Corporate Finance. 3 Credits.
Permission of the instructor. An introduction to the empirical corporate finance literature.
Grading status: Letter grade.

BUSI 885. Seminar in Research in Finance. 1.5 Credit.
Permission of the instructor. Advanced research in business finance and investment. An informal seminar to discuss current research of doctoral candidates, faculty, and others.
Grading status: Letter grade.

BUSI 886. Introduction to Empirical Finance. 3 Credits.
This course provides an introduction to the quantitative methods used in empirical asset pricing. Model specification and estimation issues are discussed at length. The course emphasizes both theoretical and practical research.
Grading status: Letter grade.

BUSI 887. Quantitative Methods in Finance. 3 Credits.
Permission of the instructor. Review of information generating and optimizing models and their applicability to decision making in finance.
Grading status: Letter grade.

BUSI 888. Seminar in Financial Markets. 3 Credits.
Permission of the instructor. Advanced methods in finance.
Grading status: Letter grade.

BUSI 890. Strategic Management Overview. 3 Credits.
A seminar to provide a broad and current understanding of strategic management. Exposure to the entire field is emphasized.
Grading status: Letter grade.

BUSI 891. Strategic Formulation. 3 Credits.
This seminar emphasizes both process and content issues to provide students with an in-depth understanding of strategy formulation topics.
Requisites: Prerequisite, BUSI 890.
Grading status: Letter grade.

BUSI 892. Strategy Implementation. 3 Credits.
This seminar focuses on strategy implementation, with particular emphasis devoted to the process, systems, and structures required for effective implementation.
Requisites: Prerequisites, BUSI 890 and 891.
Grading status: Letter grade.

BUSI 899. Seminar. 1-6 Credits.
Permission of the instructor. Individual research in a special field under direction of a member of the department
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

BUSI 899C. Seminar. 0.5-15 Credits.
Individual research in a special field under direction of a member of the department.
Grading status: Letter grade.

BUSI 992. Master's (Non-Thesis). 3 Credits.

BUSI 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF CELL BIOLOGY AND PHYSIOLOGY (GRAD)

Contact Information

Department of Cell Biology and Physiology
Visit Program Website (http://www.med.unc.edu/cellbiophysio)

Kathleen Caron, Chair

Admission to the graduate program curriculum is via the unified Biological and Biomedical Sciences Program (BBSP) at UNC–Chapel Hill. A bachelor's degree (B.A. or B.S.) is required for admission. Applicants are expected to have a strong background in the biological sciences, chemistry, physics, and mathematics. Details of the application process are available at the BBSP Web site (http://bbsp.unc.edu) and The Graduate School's admissions Web site. (http://gradschool.unc.edu/admissions) Briefly, the application should include transcripts, Graduate Record Examination (GRE) scores, three letters of recommendation, and a personal statement outlining career goals.

The mission of the Curriculum in Cell Biology and Physiology is to provide students with a rigorous, individually tailored educational experience to prepare them for research and teaching careers in the biomedical sciences. This graduate program will provide a forum for graduate students to learn current concepts in modern cell biology and physiology and to develop the skills necessary to formulate sophisticated strategies for analysis of contemporary problems in cell biology and physiology. Based on a solid foundation of coursework in cell biology and physiology, students will further complement their training by selecting courses in bioinformatics/statistics, genetics, pharmacology, immunology, and/or biochemistry that best support and enhance their specific area of research interest. Dissertation research enables students to apply these tools to a problem of intellectual and biomedical interest. Students receive strong training in the scientific process and apply their skills to probe the mechanistic basis of biological problems at molecular, cellular, and systems levels. A strong emphasis will be placed on career development, such as oral and written presentation skills, and mentoring students in a way that enables them to explore the diverse job opportunities available to them in the post-graduate biomedical workforce. Graduates will be well prepared to continue their research careers in a number of academic disciplines.

Assistantships and Other Student Aid

Students are supported by a stipend of $30,000 annually plus tuition, fees, and medical insurance.

The curriculum provides training for students whose research/teaching career objectives are faculty positions in medical school basic sciences departments. However, the flexibility of the program also provides for the training of students who seek careers in basic science as well as in clinical science departments of medical schools, in other professional schools such as dental schools, in liberal arts academic departments such as biology, or in state, federal, private, and industrial research laboratories. The program for the Ph.D. normally takes five to six years to complete. Persons interested in a combined M.D./Ph.D. program must be accepted into the School of Medicine and the departmental graduate program, whereupon the combined studies are scheduled in accordance with individual requirements.

Ph.D. students take graduate-level courses in their first year as well as conduct laboratory rotations. Students who join the curriculum at the end of year one are examined for advancement to candidacy. Ph.D. candidacy is followed by a dissertation based on original research is conducted under the supervision of a faculty advisor. Additional information is available on the departmental Web site (https://www.med.unc.edu/cellbiophysio).

Professors

Eva Anton
William Arendshorst
Albert Baldwin
Vicki Bautch
James Bear
Kerry Bloom
Jay Brenman
Patrick Brennwald
Keith W.T. Burridge
Kathleen Caron
Richard Cheney
Jean Cook
M. Joseph Costello
Frank Conlon
Douglas M. Cyr
Channing Der
Mohanish P. Deshmukh
James Faber
Bob Goldstein
Klaus Hahn
Kenneth A. Jacobson
Alan Jones
Tom Kash
Richard Loeser
Chris Mack
Paul Manis
Greg Matera
Carol Otey
Leslie Parise
Mark Peifer
Ben Philpot
Joan Taylor
Jenny Ting
Ellen R. Weiss
Richard Weinberg
Mark Zylka

Associate Professors

Wolfgang Bergmeier
Adrienne Cox
Timothy Gershon
Amy Gladfelter
Stephanie Gupton
Scott Hammond
William Kim
Scott Magness
Ben Major
Larry Ostrowski
Scott Randell

Stephen Rogers
Garret Stuber
Robert Tarran

Assistant Professors

Antonio Amelio
Edward Bahnson
Michael Bressan
Sarah Cohen
Graham Diering
Mike Emanuele
Flavio Frohlich
Kurt Gilliland
Jimena Giudice
Jiandong Liu
Damaris Lorenzo
Amy Maddox
Shaun McCullough
Zoe McElligott
Saskia Neher
Lori O'Brien
Douglas Phanstiel
Yuliya Pylayeva-Gupta
Li Qian
Spencer Smith
Natasha Snider
Juan Song
Scott Williams

Professors Emeriti

Robert G. Faust
Paul B. Farel
Noelle A. Granger
Charles R. Hackenbrock
O'Dell W. Henson Jr.
Enid R. Kafer
William E. Koch
Jean M. Lauder
Alan Light
David L. McIlwain
Edward R. Perl
Peter Petrusz
Lloyd R. Yonce

CBIO

CBIO 400. Introduction to Medical Simulation. 3 Credits.
This entry-level medical simulation course focuses on understanding the integration of simulation technology into clinical education, patient safety, and research applications to include the teamwork and communication skills related to these applications.
Grading status: Letter grade.

CBIO 423. Developmental Toxicology and Teratology. 3 Credits.
Emphasizes topics of current research interest relative to the genesis of environmentally caused and genetically based birth defects. One two-hour session per week (evening).
Grading status: Letter grade
Same as: TOXC 423.

CBIO 607. Gross Anatomy. 2-4 Credits.
Permission of the instructor. Primarily for graduate students. Enrollment by availability of space and material.
Grading status: Letter grade.

CBIO 627. Regional Anatomy. 3 Credits.
Permission of the instructor. For students of oral surgery, surgical residents, and graduate students.
Grading status: Letter grade.

CBIO 643. Cell Structure, Function, and Growth Control I. 3 Credits.
Comprehensive introduction to cell structure, function, and transformation.
Requisites: Prerequisite, undergraduate cell biology or biochemistry or permission of the instructor.
Grading status: Letter grade
Same as: BIOC 643, PHCO 643, PHYI 643.

CBPH

CBPH 705. Improving Presentation & Communication of Scientific Results. 2 Credits.
Learning modern day techniques and approaches to convey scientific results effectively as a public speaker. Teaching how to implement the key aspects of effective presentation of scientific findings in public settings. Understanding the key components of an effective public talk including scientific content, body language, and voice. Learning how to captivate the target audience and yet still convey data driven scientific findings.
Repeat rules: May be repeated for credit.
Grading status: Letter grade
Same as: NBIO 850.

CBPH 706. Communicating Scientific Results. 1 Credit.
Practice in oral and written communication evaluated by peers and faculty. Includes delivery of coached presentations on topics in physiology and preparation of writing assignments typically encountered in scientific life.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

CBPH 710. Advanced Light Microscopy. 3 Credits.
An intensive and comprehensive hands-on laboratory-oriented course in light microscopy for researchers in biology, medicine, and materials science. This course will focus on advanced quantitative fluorescence microscopy techniques used for imaging a range of biological specimens, from whole organisms, to tissues, to cells, and to single molecules. This course emphasizes the quantitative issues that are critical to the proper interpretation of images obtained with light microscopes.
Repeat rules: May be repeated for credit. 6 total credits. 1 total completions.
Grading status: Letter grade
Same as: NBIO 710.

CBPH 741. Introduction to Human Anatomy. 3 Credits.
A general course for persons preparing for careers as dental hygienists. Two lectures and two laboratory hours a week.
Grading status: Letter grade.

CBPH 791. Gross Anatomy for Physical Therapists. 4 Credits.
Fundamental principles and concepts of human gross anatomy for physical therapists taught by lectures and cadaver dissection. Emphasis on functional anatomy. Three lecture hours and six laboratory hours a week.
Requisites: Prerequisites, BIOL 474 and 474L; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

CBPH 793. Functional Neuroanatomy. 3 Credits.
Study of basic structure of the brain and spinal cord, including both lecture and laboratory. Primarily for physical therapy students. Four hours a week.
Requisites: Prerequisites, CBIO 607 and CBPH 791; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

CBPH 800. Seminar in Cell Biology & Physiology. 1-3 Credits.
Current topics relevant for biomedical sciences students. May be repeated for credit. May be repeated in the same term for different topics.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

CBPH 850. Modern Concepts in Cell Biology I. 4 Credits.
Permission of the instructor. Graduate students only. Discussion based course that covers key elements of cell, molecular, and developmental biology, and genetics. Students present and discuss breakthrough primary research papers under the direction of faculty members across the department. Minimal instructor lecturing is included.
Grading status: Letter grade.

CBPH 851. Modern Concepts in Cell Biology II. 4 Credits.
Literature based discussion course on experimental approaches in Cell Biology. Emphasis is on small group discussion and dissection of primary literature including methods, scientific logic, and critical thinking. Each session typically includes both a discussion of key background by a faculty member and student led discussions of selected papers from the primary literature.
Grading status: Letter grade.

CBPH 852. Experimental Physiology of Human Health and Disease. 4.5 Credits.
Students will learn the principles of cell, organ, and systems physiology and pathophysiology required to identify and understand important areas of current biomedical research. This course will focus on non-human model systems (cultured cells, mice, drosophila, etc.). In addition to lectures, this course will include journal-club discussion of assigned papers.
Grading status: Letter grade.

CBPH 853. Experimental Physiology of Human Health and Disease. 4.5 Credits.
Permission of the instructor. Molecular and cellular basis of organ system function; integration of systems to maintain the normal state. Understanding of normal physiology is amplified by examples from human disease and mouse models. Principles of cell, organ, and integrative physiology and how these principles apply to translational research.
Grading status: Letter grade.

CBPH 855. Career and Research Enhancement Seminar (CaRES). 1-2.5 Credits.
Permission of the director of graduate studies.
Grading status: Letter grade.

CBPH 856. Career and Research Enhancement Seminar (CaRES). 1-2.5 Credits.
Permission of the director of graduate studies.
Grading status: Letter grade.

CBPH 890. Special Topics in Cell Biology & Physiology. 1-5 Credits.
Modern day exploration of topics or methodologies of interest to PhD students in biomedical sciences. New or old relevant technologies/methodologies or subject areas of research, and/or professional skills enhancement will be addressed. This could be either for enhancing knowledge of subject materials or teaching skill sets (e.g., statistics) needed for biomedical researchers.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 5 total credits. 5 total completions.
Grading status: Letter grade.

CBPH 895. Responsible Conduct of Research (RCR). 1 Credit.
Responsible conduct of research is a classroom-based graduate level course covering critical topics for ethical and responsible conduct of experimental research. There are both classroom lecture, workshop-type discussion components, in addition to assigned outside of class readings. Topics include: mentor and mentee relationships, publication authorship, collaboration, peer review, ethical use of human and animal subjects, conflicts of interest, intellectual property, plagiarism, data acquisition, and data processing.
Grading status: Letter grade.

CBPH 910. Research. 2-15 Credits.
Credit to be arranged in individual cases.
Grading status: Letter grade.

CBPH 915. Research Laboratory Apprenticeship. 2 Credits.
Enrollment in the cell biology and anatomy graduate program required. A course for first- and second-year graduate students in cell biology and anatomy, consisting of a research project of limited scope pursued under the supervision of a faculty member.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

CBPH 993. Master's Research and Thesis. 3 Credits.

CBPH 994. Doctoral Research and Dissertation. 3 Credits.

PHYI

PHYI 643. Cell Structure, Function, and Growth Control I. 3 Credits.
Comprehensive introduction to cell structure, function, and transformation.
Requisites: Prerequisite, undergraduate cell biology or biochemistry or permission of the instructor.
Grading status: Letter grade
Same as: CBIO 643, BIOC 643, PHCO 643.

DEPARTMENT OF CHEMISTRY (GRAD)

Contact Information

Department of Chemistry
Visit Program Website (http://www.chem.unc.edu)

Jeffrey Johnson, Chair

The Department of Chemistry offers graduate programs leading to the degrees of master of arts, master of science (non-thesis), and doctor of philosophy in the fields of analytical, biological, inorganic, organic, physical, and polymer and materials chemistry. Reinforcing the broad nature of our graduate program, we have close interactions with various departments, including the Departments of Physics and Astronomy, Biochemistry and Biophysics, Environmental Science and Engineering, and the Biological and Biomedical Sciences Program.

Research Interests

Analytical

Development of instrumentation for ultra-high pressure capillary liquid chromatography, capillary electrophoresis, and combined two-dimensional separations. Applications include proteomics and measurement of peptide hormones in biological tissues. Mass spectrometry of biological, environmental, organic, and polymeric compounds; tandem MS, ion activation, ion molecule reactions; instrument development. Electrochemistry: new methods for study of biological media, neurotransmitters small spaces, redox solids, chemically modified surfaces, nanoparticle chemistry, and quantum size effects including the analytical chemistry of nanoparticles. Chemical microsystems: microfabricated fluidics technologies (i.e., lab-on-a-chip devices) to address biological measurement problems such as protein expression, cell signaling, and clinical diagnostics. Miniaturized mass spectrometers for environmental monitoring. Nanoscale fluidics devices for single molecule DNA sequencing and chemical sensing. Polymeric membranes to improve the analytical performance of in vivo sensors and enable accurate measurement of analytes in challenging milieu.

Biological

Structure-function relationships of complex biochemical processes; the molecular basis of disease; chemical biology; biophysics; mechanism of protein biosynthesis; metabolic regulation; gene organization and regulation of gene expression; biomolecular structure; protein folding; protein and RNA chemistry under physiologically relevant conditions, in-cell NMR; thermodynamics of protein-protein interactions; characterization of protein-protein and protein-DNA complexes by atomic force microscopy and single molecule fluorescence; in vitro and in vivo studies of DNA repair; RNA structure in vivo, RNA and viral genomics, transcriptome structure, assembly of biomedically important RNA-protein complexes; chemical synthesis of peptides and proteins; protein engineering through chemical synthesis and directed evolution; unnatural amino acid mutagenesis; molecular modeling of biomolecules; cell surface biophysics; fluorescence microscopy and spectroscopy; small molecule and protein microarray development; live cell fluorescence microscopy; genomics-driven natural product discovery; natural product biosynthesis and pathway engineering and design; synthetic biology; antibiotic mechanism of action; bioinformatics; metabolomics; small molecules involved in inter- and intra- species signaling.

Inorganic

Physical inorganic chemistry: electronic structure of transition metal complexes; photochemistry and electrochemistry of metal complexes; use of coordination complexes and inorganic materials for solar energy harvesting and conversion; molecular orbital theory, nuclear magnetic resonance and electron paramagnetic resonance spectroscopies; X-ray crystallography; infrared and Raman spectroscopies. Chemistry of transition metal complexes: synthesis of transition metal compounds, organometallic chemistry including metal-catalyzed organic reactions; reactions of coordinated ligands; kinetics and mechanisms of inorganic reactions; metal cluster chemistry; chiral supramolecular chemistry. Materials chemistry: molecular precursors to materials; solid state lattice design; metal-ion containing thin films; metal-polymer complexes; functional coordination polymers and metal-organic frameworks; chiral porous solids. Bioinorganic and medicinal inorganic chemistry: nanomaterials for biomedical imaging and anticancer drug delivery; reactivity of oxidized metal complexes with nucleic acids, photo-induced DNA cleavage, synthesis and characterization of model complexes for metalloenzymes.

Organic

Synthesis and biological reactions of natural products; peptide synthesis; protein engineering; structure-function studies on polypeptides and proteins; mechanistic and synthetic studies in organometallic chemistry; catalysis using organometallic complexes; nuclear magnetic resonance; kinetics; organosulfur and organophosphorus chemistry; surface effects in chemical behavior; chemistry of reactive intermediates including carbocations, carbanions, carbenes radical ions and radical pairs; photochemistry; light-driven organic catalysis; fluorescent sensors; enzyme inhibitors; new synthetic methods including asymmetric catalysis; stereochemistry and conformational analysis; design and synthesis of models for metalloenzymes; epr investigations of electronic couplings in high-spin organic molecules; spectroscopic studies of free radicals; synthesis and characterization of well-defined polymeric materials; synthesis of materials for use in microelectronics; homogeneous and heterogeneous polymerizations in supercritical fluids; synthesis of engineering polymers; molecular recognition.

Physical Chemistry

Ultrafast spectroscopy: femtosecond laser techniques to study photochemistry (e.g., energy transfer, proton coupled electron transfer) in systems including carbon nanotubes, light harvesting proteins, and several materials relevant to the production of solar fuels. Nonlinear Optics: lasers pulses with widely tunable bandwidths and frequencies with new nonlinear optical methods. Molecular interactions and dynamics in cells using optical Kerr effect and phase contrast methods. Spatial and temporal resolution of energy and charge transport within individual metal oxide nanoparticles using pump-probe microscopies. Biophysics: movements and interactions of regulatory proteins in cell nuclei using optical microscopies (e.g., FRET, FCS). Coherent quantum effects in photosynthesis using new laser spectroscopies analogous to multidimensional NMR techniques. Theoretical Chemistry: molecular dynamics simulations to study the structures and dynamics of biological membranes in addition to the properties of aqueous solutions next to such membranes. Laser spectroscopy in cooled molecular beams of transient species, ions and molecular complexes, subdoppler infrared spectroscopy, ion photodissociation studies, development of spectroscopic techniques, double resonance spectroscopy, pulsed field gradient NMR and NMR imaging. Application of optical and mass spectroscopies to study atmospheric chemistry. Quantum chemistry, density functional theory, quantum biology of neurotransmitters and

pharmacological agents, energy minimization, protein dynamics, cooperativity, molecular graphics, mutagenesis, statistical mechanics of a liquid phase, structure and dynamics of aqueous solutions, kinetics in condensed phases, mechanical properties of polymers, state-to-state chemistry, reactions and energy transfer at solid surfaces. Polymer properties: preparation of and nonlinear optical effects in polymeric systems, self-organized polymers, and liquid crystalline materials.

Polymer and Materials Chemistry

Synthesis, properties, and utilization of novel functional materials for various applications ranging from medicine and microelectronics to oil recovery and climate change. The many-pronged approach includes synthesis and molecular characterization of multifunctional monomers and polymers, computer modeling and intelligent design of molecular architectures that are able to sense, process, and response to impacts from the surrounding environment, and preparation of new engineering thermoplastics and liquid crystalline materials. Recent efforts funded by the National Cancer Institute, National Institute of Health, Advanced Energy Consortium, and Army Research Office are focused on lithographic design of organic nanoparticles for the detection, diagnosis, and treatment of diseases (especially cancer), self-healing, shape-memory, mechanocatalysis, organic solar cells, and imaging contrast agents for oil exploration. A broad variety of expertise includes imaging and probing of submicrometer surface structures by scanning probe microscopy, dynamic mechanical analysis, characterization of polymer dynamics by NMR techniques and light scattering, microfluidics and drug delivery control, measurement of molecular conductivity and energy conversion efficiency, and analytical as well as computational and numerical studies of soft materials, such as polymers, colloids, and liquid crystals.

Facilities and Equipment

Research is carried out in the William Rand Kenan Jr. Laboratories, a facility of 130,000 square feet completed in 1971, and the W. Lowry and Susan S. Caudill Laboratories, a facility of 71,000 square feet completed in 2006. The undergraduate laboratories are housed in the modern John Motley Morehead Laboratories, completed in 1986. Included in the department are some major facilities managed by Ph.D.-level staff scientists. The NMR laboratory includes five high-resolution FT-NMR spectrometers ranging from 300 to 600 MHz for liquids: two 400 MHz, 500 MHz, and 600 MHz Bruker spectrometers, and a 600 MHz Agilent/Varian spectrometer. The Bruker 600 MHz spectrometer is equipped with two cryoprobes for ultra-high sensitivity and a sample changer. There is also a Bruker 360 MHz wide bore FT-NMR spectrometer suitable for solid polymeric samples with magic angle spinning. The MS laboratory houses a Bruker BioTOF II Reflectron Time of Flight Mass Spectrometer (ESI/nESI), an Agilent HPLC Quadrupole Mass Spectrometer (ESI, APCI), a Bruker 820 ICP-MS for elemental analysis, a Thermo LTqFT with 7.0 Tesla magnet primary used for accurate mass measurements, a Photon Machines 192 Eximer Laser integrated onto a Thermo Element XR ICP-MS for elemental analysis of both solution and solid material, and a Micromass Quattro II Triple Quadrupole Mass Spectrometer. An IonSpec 9.4 Telsa FT-ICR is also available for conducting high-resolution electrospray and MALDI experiments. The X-ray laboratory is equipped with a Bruker AXS SMART APEX2 single crystal diffractometer and Rigaku Multiflex powder diffractometer.

Computing services are among the most important for modern research. The University's computing resources that currently reside in Information Technology Services (ITS) include

- Emerald (Linux) - Beowulf Red Hat Linux cluster consisting of ~830 Intel Xeon IBM Blade Center processors ranging from 2.0–3.2GHz
- Emerald (AIX) - High memory (32+GB) Power5 AIX cluster with 64 processors
- Topsail - 520 blade Dell Linux server with 2 quad-core 2.3 GHz Intel EM64T processors for 4160 total processors
- A variety of specialty machines that provide services for statistics, bioinformatics, and database applications.

A number of the individual research laboratories in the Department of Chemistry own Silicon Graphics- or Linux-based workstations. Numerous software packages of interest to chemical, biochemical, and materials researchers are maintained for use on central systems by the ITS Research Computing group (Accelrys, Gaussian, MolPro, NWChem, CPMD, AMBER, Gromacs, Sybyl, SAS, Stata, Mathematica, ECCE, Gaussview, Schrodinger, etc.). The combined hardware and software resources are tailored to meet the needs of a broad range of chemists working on applications in quantum mechanics, molecular dynamics, NMR, X-RAY, structural biology, and bioinformatics.

To support the research programs, the department provides a number of services. Glass and electronics facilities are provided to assist in construction and maintenance of specialized equipment. Technicians are also available to run certain specialized instruments. The William Rand Kenan Jr. Chemistry Library is located in Venable/Murray Hall. The majority of the Chemistry Library's journal subscriptions and databases are available online for 24-hour access from campus workstations and other workstations that meet licensing requirements. The collection also includes many print reference works and monographs that are available for checkout or use in the reading room when the library is open. Reference and instructional services are also available at the library service desk and by arrangement with library staff.

Financial Aid and Admission

The department awards a number of industrial fellowships and predoctoral research and teaching appointments. All outstanding prospective graduate students who apply for admission/support are automatically considered for fellowships.

There are more than 200 graduate students in the department. All are supported either as teaching assistants (27 percent), research assistants (65 percent), or as fellows (8 percent) supported by The Graduate School, industry, or the United States government. The duties of the teaching assistants include the preparation for and supervision of laboratory classes in undergraduate courses and the grading of laboratory reports.

Applications for assistantships and fellowships should be made before the end of January, although applicants for assistantships are considered after that date. All applicants (international and domestic) must take the Graduate Record Examination (GRE). All international students whose native language is not English must take the Test of English as a Foreign Language (TOEFL) examination in addition to the Graduate Record Examination. However, international students who hold a degree from a university in the United States may be exempt. Both the TOEFL and the GRE should be taken as early as possible for fall acceptance, preferably in October.

Application forms for admission can be completed online at the Graduate School's Web site (http://gradschool.unc.edu/admissions). Financial support as well as information about the department can be obtained from the Chemistry Department's graduate Web site (http://

www.chem.unc.edu/grads). Questions about our program may be directed to the e-mail address chemgs@unc.edu.

Doctor of Philosophy

The Ph.D. degree in chemistry is a research degree, and students normally begin research during the first year in graduate school. As soon as the entering student has selected a research advisor, an advisory committee is established to develop an appropriate course of study designed to meet individual needs. The Ph.D. degree consists of completion of a suitable program of study, a preliminary doctoral oral examination, a written comprehensive examination that is satisfied by cumulative examinations, an original research project culminating in a dissertation, and a final oral examination.

Master of Arts

The master of arts degree requires a minimum of 30 semester hours of credit. The student's advisory committee determines courses. A written comprehensive examination (which may be satisfied by cumulative examinations), a thesis, and a final oral examination are also required. Admission to the Ph.D. program after completion of the M.A. degree in the department requires approval by the Chemistry Graduate Studies Committee.

Master of Science (Non-Thesis)

The master of science (non-thesis) degree requires a minimum of 30 semester hours. The candidate must earn at least 24 hours of graduate credit in chemistry and allied subjects, which may include graduate seminars numbered 700 or higher but may not include CHEM 921, CHEM 931, CHEM 941, CHEM 951, CHEM 961, and CHEM 981 (referred to collectively as "9X1"). As a substitute for the thesis, the candidate must earn a minimum of three hours of CHEM 992 (master's non-thesis option). The student's advisory committee determines the student's program of study. A written report submitted to the student's research director describing work done while registered for CHEM 992 and a written examination (which may be satisfied by cumulative examinations) are also required. Admission to the Ph.D. program after completing the M.S. degree in the department requires approval by the Chemistry Graduate Studies Committee.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Nancy L. Allbritton (50), Analytical Chemistry
Todd L. Austell (70), Chemistry Education, Academic Advising, Lab Curriculum Development
Max L. Berkowitz (30), Physical Chemistry
Michael T. Crimmins (39), Organic Chemistry
Joseph M. DeSimone (49), Synthetic Polymer Chemistry
Dorothy A. Erie (11), Physical and Biological Chemistry
Michel R. Gagné (22), Inorganic, Organic and Polymer Chemistry
Gary L. Glish (40), Analytical Chemistry
Jeffrey S. Johnson (58), Organic Chemistry
John M. Papanikolas (52), Physical Chemistry
Gary J. Pielak (46), Biological Chemistry
J. Michael Ramsey (62), Analytical Chemistry
Matthew R. Redinbo (55), Biological Chemistry
Mark H. Schoenfisch (57), Analytical and Materials Chemistry
Sergei S. Sheyko (59), Polymer and Materials Chemistry
Joseph L. Templeton (31), Inorganic Chemistry
Nancy L. Thompson (41), Physical and Biological Chemistry
Marcey Waters (56), Organic Chemistry
Kevin M. Weeks (53), Biological Chemistry
Richard V. Wolfenden (65), Biological Chemistry
Wei You (42), Polymer and Materials Chemistry

Associate Professors

Erik J. Alexanian (77), Organic Chemistry
James F. Cahoon (80), Polymer and Materials Chemistry
Brian P. Hogan (72), Chemistry Education, Academic Advising, Lab Curriculum Development
Yosuke Kanai (81), Physical Chemistry
Andrew M. Moran (6), Physical Chemistry
David A. Nicewicz (78), Organic Chemistry
Cynthia K. Schauer (45), Inorganic Chemistry
Domenic Tiani (71), Chemistry Education, Academic Advising, Lab Curriculum Development

Assistant Professors

Joanna M. Atkin (86), Physical Chemistry
Jillian L. Dempsey (3), Inorganic Chemistry
Jeffrey E. Dick (13), Analytical Chemistry
Leslie M. Hicks (35), Analytical Chemistry
Abigail Knight (12), Organic Chemistry
Frank A. Leibfarth (10), Polymer and Materials Chemistry
Bo Li (85), Biological Chemistry
Matthew R. Lockett (37), Analytical Chemistry
Zhiyue Lu (009), Theoretical Chemistry
Simon J. Meek (79), Organic Chemistry
Alexander J. Miller (4), Inorganic Chemistry
Scott C. Warren (63), Polymer and Materials Chemistry
Sidney M. Wilkerson-Hill (14), Organic Chemistry
Alex Zhukhovitskiy (008), Polymer and Materials Chemistry

Professors Emeriti

Tomas Baer
Maurice M. Bursey
James L. Coke
Richard G. Hiskey
Eugene A. Irene
Richard C. Jarnagin
Donald C. Jicha
Charles S. Johnson Jr.
James W. Jorgenson
Paul J. Kropp
Thomas J. Meyer
Robert G. Parr
Lee G. Pedersen
Royce W. Murray
Michael Rubinstein
R. Mark Wightman

Chemistry (CHEM)

Advanced Undergraduate and Graduate-level Courses

CHEM 410. Instructional Methods in the Chemistry Classroom. 4 Credits.
Permission of the instructor. This course explores secondary school chemical education through current chemical education theory and classroom teaching. Students will develop a comprehensive approach to teaching chemistry content through student-centered activities.
Requisites: Prerequisites, CHEM 241, 251, 262, and 262L.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

CHEM 420. Introduction to Polymer Chemistry. 3 Credits.
Chemical structure and nomenclature of macromolecules, synthesis of polymers, characteristic polymer properties.
Requisites: Prerequisite, CHEM 261 or 261H; pre- or corequisites, CHEM 262 or 262H, and 262L or 263L.
Grading status: Letter grade
Same as: APPL 420.

CHEM 421. Synthesis of Polymers. 3 Credits.
Synthesis and reactions of polymers; various polymerization techniques.
Requisites: Prerequisites, CHEM 251 and 262 or 262H.
Grading status: Letter grade
Same as: APPL 421.

CHEM 422. Physical Chemistry of Polymers. 3 Credits.
Polymerization and characterization of macromolecules in solution.
Requisites: Prerequisites, CHEM 420 and 481.
Grading status: Letter grade
Same as: APPL 422.

CHEM 423. Intermediate Polymer Chemistry. 3 Credits.
Polymer dynamics, networks and gels.
Requisites: Prerequisite, CHEM 422.
Grading status: Letter grade
Same as: APPL 423.

CHEM 425. Polymer Materials. 3 Credits.
Solid-state properties of polymers; polymer melts, glasses and crystals.
Requisites: Prerequisite, CHEM 421 or 422.
Grading status: Letter grade.

CHEM 430. Introduction to Biological Chemistry. 3 Credits.
The study of cellular processes including catalysts, metabolism, bioenergetics, and biochemical genetics. The structure and function of biological macromolecules involved in these processes is emphasized. Honors version available
Requisites: Prerequisites, BIOL 101, and CHEM 262 or 262H.
Grading status: Letter grade
Same as: BIOL 430.

CHEM 430H. Introduction to Biological Chemistry. 3 Credits.
The study of cellular processes including catalysts, metabolism, bioenergetics, and biochemical genetics. The structure and function of biological macromolecules involved in these processes is emphasized.
Requisites: Prerequisites, BIOL 101, and CHEM 262 or 262H.
Grading status: Letter grade
Same as: BIOL 430H.

CHEM 431. Macromolecular Structure and Metabolism. 3 Credits.
Structure of DNA and methods in biotechnology; DNA replication and repair; RNA structure, synthesis, localization and transcriptional reputation; protein structure/function, biosynthesis, modification, localization, and degradation.
Requisites: Prerequisites, BIOL 202 and CHEM 430.
Grading status: Letter grade.

CHEM 432. Metabolic Chemistry and Cellular Regulatory Networks. 3 Credits.
Biological membranes, membrane protein structure, transport phenomena; metabolic pathways, reaction themes, regulatory networks; metabolic transformations with carbohydrates, lipids, amino acids, and nucleotides; regulatory networks, signal transduction.
Requisites: Prerequisite, CHEM 430.
Grading status: Letter grade.

CHEM 433. Transport in Biological Systems. 1 Credit.
Permission of the instructor for undergraduates. Diffusion, sedimentation, electrophoresis, flow. Basic principles, theoretical methods, experimental techniques, role in biological function, current topics.
Requisites: Prerequisites, CHEM 430 and MATH 383.
Grading status: Letter grade.

CHEM 441. Intermediate Analytical Chemistry. 2 Credits.
Spectroscopy, electroanalytical chemistry, chromatography, thermal methods of analysis, signal processing.
Requisites: Prerequisites, CHEM 241, 241L, 262, and 480 or 481.
Grading status: Letter grade.

CHEM 441L. Intermediate Analytical Chemistry Laboratory. 2 Credits.
Experiments in spectroscopy, electroanalytical chemistry, chromatography, thermal methods of analysis, and signal processing. One four-hour laboratory a week and one one-hour lecture.
Requisites: Corequisite, CHEM 441.
Grading status: Letter grade.

CHEM 443. Surface Analysis. 3 Credits.
This class will focus on analytical techniques capable of probing the physical and chemical properties of surfaces and interfaces. These analyses are extremely challenging, as the sample sizes are small (e.g., 1E14 molecules/cm2 of a material). The course will focus on complementary techniques to assess surface structure and topography, atomic and molecular composition, organization or disorder, and reactivity.
Requisites: Prerequisite, CHEM 441 or CHEM 481; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

CHEM 444. Separations. 3 Credits.
Theory and applications of equilibrium and nonequilibrium separation techniques. Extraction, countercurrent distribution, gas chromatography, column and plane chromatographic techniques, electrophoresis, ultra-centrifugation, and other separation methods.
Requisites: Prerequisites, CHEM 441 and CHEM 480 or 481.
Grading status: Letter grade.

CHEM 445. Electroanalytical Chemistry. 3 Credits.
Basic principles of electrochemical reactions, electroanalytical voltammetry as applied to analysis, the chemistry of heterogeneous electron transfers, and electrochemical instrumentation.
Requisites: Prerequisite, CHEM 480 or 481.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

CHEM 446. Analytical Spectroscopy. 3 Credits.
Optical spectroscopic techniques for chemical analysis including conventional and laser-based methods. Absorption, fluorescence, scattering and nonlinear spectroscopies, instrumentation and signal processing.
Requisites: Prerequisites, CHEM 441 and 482.
Grading status: Letter grade.

CHEM 447. Bioanalytical Chemistry. 3 Credits.
Principles and applications of biospecific binding as a tool for performing selective chemical analysis.
Requisites: Prerequisite, CHEM 441.
Grading status: Letter grade.

CHEM 448. Mass Spectrometry. 3 Credits.
Fundamental theory of gaseous ion chemistry, instrumentation, combination with separation techniques, spectral interpretation for organic compounds, applications to biological and environmental chemistry.
Requisites: Prerequisite, CHEM 480 or 481.
Grading status: Letter grade.

CHEM 449. Microfabricated Chemical Measurement Systems. 3 Credits.
Introduction to micro and nanofabrication techniques, fluid and molecular transport at the micrometer to nanometer length scales, applications of microtechnology to chemical and biochemical measurements.
Requisites: Prerequisite, CHEM 441.
Grading status: Letter grade.

CHEM 450. Intermediate Inorganic Chemistry. 3 Credits.
Introduction to symmetry and group theory; bonding, electronic spectra, and reaction mechanisms of coordination complexes; organometallic complexes, reactions, and catalysis; bioinorganic chemistry.
Requisites: Prerequisite, CHEM 251.
Grading status: Letter grade.

CHEM 451. Theoretical Inorganic Chemistry. 3 Credits.
Chemical applications of symmetry and group theory, crystal field theory, molecular orbital theory. The first third of the course, corresponding to one credit hour, covers point symmetry, group theoretical foundations and character tables.
Requisites: Prerequisites, CHEM 262 or 262H and 450.
Grading status: Letter grade.

CHEM 452. Electronic Structure of Transition Metal Complexes. 3 Credits.
A detailed discussion of ligand field theory and the techniques that rely on the theoretical development of ligand field theory, including electronic spectroscopy, electron paramagnetic resonance spectroscopy, and magnetism.
Requisites: Prerequisite, CHEM 451.
Grading status: Letter grade.

CHEM 453. Physical Methods in Inorganic Chemistry. 3 Credits.
Introduction to the physical techniques used for the characterization and study of inorganic compounds. Topics typically include nuclear magnetic resonance spectroscopy, vibrational spectroscopy, diffraction, Mossbauer spectroscopy, X-ray photoelectron spectroscopy, and inorganic electrochemistry.
Requisites: Prerequisite, CHEM 451.
Grading status: Letter grade.

CHEM 460. Intermediate Organic Chemistry. 3 Credits.
Modern topics in organic chemistry. Honors version available
Requisites: Prerequisite, CHEM 262 or 262H.
Grading status: Letter grade.

CHEM 460H. Intermediate Organic Chemistry. 3 Credits.
Modern topics in organic chemistry.
Requisites: Prerequisite, CHEM 262 or 262H.
Grading status: Letter grade.

CHEM 465. Mechanisms of Organic and Inorganic Reactions. 4 Credits.
Kinetics and thermodynamics, free energy relationships, isotope effects, acidity and basicity, kinetics and mechanisms of substitution reactions, one- and two-electron transfer processes, principles and applications of photochemistry, organometallic reaction mechanisms.
Requisites: Prerequisite, CHEM 450.
Grading status: Letter grade.

CHEM 466. Advanced Organic Chemistry I. 3 Credits.
A survey of fundamental organic reactions including substitutions, additions, elimination, and rearrangements; static and dynamic stereochemistry; conformational analysis; molecular orbital concepts and orbital symmetry.
Requisites: Prerequisite, CHEM 460.
Grading status: Letter grade.

CHEM 467. Advanced Organic Chemistry II. 2 Credits.
Spectroscopic methods of analysis with emphasis on elucidation of the structure of organic molecules: 1H and 13C NMR, infrared, ultraviolet, ORD-CD, mass, and photoelectron spectroscopy.
Requisites: Prerequisite, CHEM 466.
Grading status: Letter grade.

CHEM 468. Synthetic Aspects of Organic Chemistry. 3 Credits.
Modern synthetic methods and their application to the synthesis of complicated molecules.
Requisites: Prerequisite, CHEM 466.
Grading status: Letter grade.

CHEM 469. Organometallics and Catalysis. 3 Credits.
Structure and reactivity of organometallic complexes and their role in modern catalytic reactions
Requisites: Prerequisites, CHEM 450 and 466.
Grading status: Letter grade.

CHEM 470. Fundamentals of Materials Science. 3 Credits.
Crystal geometry, diffusion in solids, mechanical properties of solids, electrical conduction in solids, thermal properties of materials, phase equilibria.
Requisites: Prerequisite, CHEM 482 or PHYS 128. Pre- or corequisite, PHYS 441.
Grading status: Letter grade
Same as: APPL 470.

CHEM 471. Mathematical Techniques for Chemists. 3 Credits.
Knowledge of differential and integral calculus. Chemical applications of higher mathematics.
Requisites: Prerequisite, MATH 383; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

CHEM 472. Chemistry and Physics of Electronic Materials Processing. 3 Credits.
Permission of the instructor. A survey of materials processing and characterization used in fabricating microelectronic devices. Crystal growth, thin film deposition and etching, and microlithography.
Requisites: Prerequisite, CHEM 482 or PHYS 117 or 119.
Grading status: Letter grade
Same as: PHYS 472, APPL 472.

CHEM 473. Chemistry and Physics of Surfaces. 3 Credits.
The structural and energetic nature of surface states and sites, experimental surface measurements, reactions on surfaces including bonding to surfaces and adsorption, interfaces.
Requisites: Prerequisite, CHEM 470.
Grading status: Letter grade
Same as: APPL 473.

CHEM 480. Introduction to Biophysical Chemistry. 3 Credits.
Does not carry credit toward graduate work in chemistry or credit toward any track of the B.S. degree with a major in chemistry. Application of thermodynamics to biochemical processes, enzyme kinetics, properties of biopolymers in solution.
Requisites: Prerequisites, CHEM 261 or 261H, MATH 232, and PHYS 105.
Grading status: Letter grade.

CHEM 481. Physical Chemistry I. 3 Credits.
Thermodynamics, kinetic theory, chemical kinetics.
Requisites: Prerequisites, CHEM 102 or 102H, PHYS 118 or 116; pre- or corequisites, MATH 383 and PHYS 119 or 117; C- or better required in chemistry course prerequisites.
Grading status: Letter grade.

CHEM 481L. Physical Chemistry Laboratory I. 2 Credits.
Experiments in physical chemistry. One four-hour laboratory each week.
Requisites: Corequisite, CHEM 482.
Grading status: Letter grade.

CHEM 482. Physical Chemistry II. 3 Credits.
Introduction to quantum mechanics, atomic and molecular structure, spectroscopy, statistical mechanics.
Requisites: Prerequisite, CHEM 481.
Grading status: Letter grade.

CHEM 482L. Physical Chemistry Laboratory II. 2 Credits.
Experiments in physical chemistry. Solving thermodynamic and quantum mechanical problems using computer simulations. One three-hour laboratory and a single one-hour lecture each week.
Requisites: Prerequisite, CHEM 482.
Grading status: Letter grade.

CHEM 484. Thermodynamics and Introduction to Statistical Thermodynamics. 1-21 Credits.
Thermodynamics, followed by an introduction to the classical and quantum statistical mechanics and their application to simple systems. The section on thermodynamics can be taken separately for one hour credit.
Requisites: Prerequisite, CHEM 482.
Grading status: Letter grade.

CHEM 485. Chemical Dynamics. 3 Credits.
Experimental and theoretical aspects of atomic and molecular reaction dynamics.
Requisites: Prerequisites, CHEM 481 and 482.
Grading status: Letter grade.

CHEM 486. Introduction to Quantum Chemistry. 3 Credits.
Introduction to the principles of quantum mechanics. Approximation methods, angular momentum, simple atoms and molecules.
Requisites: Prerequisites, CHEM 481 and 482.
Grading status: Letter grade.

CHEM 487. Introduction to Molecular Spectroscopy. 3 Credits.
Interaction of radiation with matter; selection rules; rotational, vibrational, and electronic spectra of molecules; laser based spectroscopy and nonlinear optical effects.
Requisites: Prerequisite, CHEM 486.
Grading status: Letter grade.

CHEM 488. Quantum Chemistry. 3 Credits.
Applications of quantum mechanics to chemistry. Molecular structure, time-dependent perturbation theory, interaction of radiation with matter.
Requisites: Prerequisite, CHEM 486.
Grading status: Letter grade.

CHEM 489. Statistical Mechanics. 3 Credits.
Applications of statistical mechanics to chemistry. Ensemble formalism, condensed phases, nonequilibrium processes.
Requisites: Prerequisite, CHEM 484.
Grading status: Letter grade.

CHEM 520L. Polymer Chemistry Laboratory. 2 Credits.
Various polymerization techniques and characterization methods. One four-hour laboratory each week.
Requisites: Pre- or corequisite, CHEM 420 or 421 or 425.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade
Same as: APPL 520L.

CHEM 530L. Laboratory Techniques for Biochemistry. 3 Credits.
An introduction to chemical techniques and research procedures of use in the fields of protein and nucleic acid chemistry. Two four-hour laboratories and one one-hour lecture a week.
Requisites: Prerequisites, BIOL 202; pre- or co-requisite, CHEM 430.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

CHEM 541. Analytical Microscopy. 3 Credits.
Introduction to microscopy techniques utilized in the analysis of chemical and biological samples with a focus on light, electron, and atomic force microscopy. Permission of instructor required for those missing prerequisites.
Grading status: Letter grade.

CHEM 550L. Synthetic Chemistry Laboratory I. 2 Credits.
A laboratory devoted to synthesis and characterization of inorganic complexes and materials. A four-hour synthesis laboratory, a characterization laboratory outside of the regular laboratory period, and a one-hour recitation each week.
Requisites: Prerequisites, CHEM 241L or 245L, 251, and 262L or 263L.
Gen Ed: CI.
Grading status: Letter grade.

CHEM 560L. Synthetic Organic Laboratory. 2 Credits.
An advanced synthesis laboratory focused on topics in organic chemistry. A four-hour synthesis laboratory, a characterization laboratory outside of the regular laboratory period, and a one-hour recitation each week.
Requisites: Prerequisites, CHEM 241L, 245L, 262L, 263L.
Grading status: Letter grade.

CHEM 692H. Senior Honors Thesis. 3 Credits.
CHEM 395 must have been in the same laboratory as 692H. Senior majors only. Required of all candidates for honors or highest honors.
Requisites: Prerequisite, six credit hours of CHEM 395.
Grading status: Letter grade.

Graduate-level Courses

CHEM 701. Introduction to Laboratory Safety. 1 Credit.
Permission of the instructor for undergraduates. This introductory course in laboratory chemical safety is required for all entering chemistry graduate students. Topics include laboratory emergencies, chemical hazards, laboratory inspections and compliance, working with chemicals, waste handling, case studies of university accidents, laboratory equipment, biosafety, radiation, animals, and microfabrication and nanomaterials.
Grading status: Letter grade.

CHEM 721. Seminar in Materials Chemistry. 2 Credits.
Graduate standing required.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

CHEM 730. Chemical Biology. 2-4 Credits.
Application of chemical principles and tools to study and manipulate biological systems; in-depth exploration of examples from the contemporary literature. Topics include new designs for the genetic code, drug design, chemical arrays, single molecule experiments, laboratory-based evolution, chemical sensors, and synthetic biology.
Requisites: Prerequisite, CHEM 430.
Grading status: Letter grade.

CHEM 731. Seminar in Biological Chemistry. 2 Credits.
Graduate standing required. Literature survey dealing with topics in protein chemistry and nucleic acid chemistry.
Grading status: Letter grade.

CHEM 732. Advances in Macromolecular Structure and Function. 3 Credits.
In-depth analysis of the structure-function relationships governing protein-protein and protein-nucleic acid interactions. Topics include replication, DNA repair, transcription, translation, RNA processing, protein complex assembly, and enzyme regulation. Course includes both the current and classic literature that highlight the techniques used to study these processes.
Grading status: Letter grade.

CHEM 733. Special Topics in Biological Chemistry. 0.5-21 Credits.
Modern topics in biological chemistry.
Grading status: Letter grade.

CHEM 741. Literature Seminar in Analytical Chemistry. 2 Credits.
Graduate standing required. Colloquium of modern analytical chemistry topics presented by graduate students and select invited speakers.
Grading status: Letter grade.

CHEM 742. Analytical Research Techniques. 2 Credits.
Introduction to chemical instrumentation including digital and analog electronics, computers, interfacing, and chemometric techniques. Two one-hour lectures a week.
Grading status: Letter grade.

CHEM 742L. Laboratory in Analytical Research Techniques. 2 Credits.
Experiments in digital and analog instrumentation, computers, interfacing and chemometrics, with applications to chemical instrumentation.
Requisites: Co-requisite, CHEM 742.
Grading status: Letter grade.

CHEM 744. Special Topics in Analytical Chemistry. 0.5-21 Credits.
Modern topics in analytical chemistry, including advanced electroanalytical chemistry, advanced mass spectrometry, chemical instrumentation, and other subjects of recent significance. Two lecture hours a week.
Grading status: Letter grade.

CHEM 745. Analytical Technical Writing Workshop. 1 Credit.
Students will participate in 12 workshop sessions co-presented by the instructor and TA covering the basics of technical writing. Each workshop is designed to help students prepare successful proposals for external graduate fellowships, but skills practiced are readily extended to the 2nd-year prospectus, manuscript preparation, the thesis, and beyond.
Repeat rules: May be repeated for credit. 3 total credits. 1 total completions.
Grading status: Letter grade.

CHEM 752. Special Topics in Inorganic Chemistry. 0.5-21 Credits.
Permission of the instructor. Research-level survey of topics in inorganic chemistry and related areas.
Grading status: Letter grade.

CHEM 754. Literature Seminar in Inorganic Chemistry. 2 Credits.
Graduate standing required.
Grading status: Letter grade.

CHEM 755. Inorganic Technical Writing Workshop. 1 Credit.
Students will participate in 11 workshop sessions co-presented by the instructor and TA covering the basics of technical writing. They are designed to help students prepare successful proposals for external graduate fellowships, but skills practiced are readily extended to the 2nd-year prospectus, 3rd-year proposal, manuscript preparation, the thesis, and beyond.
Grading status: Letter grade.

CHEM 758. X-Ray Structure Determination. 3 Credits.
Required preparation, knowledge of elementary and differential calculus is assumed. Permission of the instructor. This course is designed to introduce students to the techniques used in solving crystal structures by X-ray diffraction. Three lecture hours a week.
Grading status: Letter grade.

CHEM 761. Seminar in Organic Chemistry. 2 Credits.
Graduate standing required. One afternoon meeting a week and individual consultation with the instructor.
Grading status: Letter grade.

CHEM 764. Special Topics in Organic Chemistry. 0.5-21 Credits.
Two lecture hours a week.
Grading status: Letter grade.

CHEM 767. Organic Chemistry. 0.5-21 Credits.
Permission of the instructor. Three to six hours a week.
Grading status: Letter grade.

CHEM 780. Advanced Materials Science. 3 Credits.
This course covers the physical fundamentals of material science with an in-depth discussion of structure formation in soft and hard materials and how structure determines material mechanical, electrical, thermal, and optical properties. Topics include amorphous and crystal structures, defects, dislocation theory, thermodynamics and phase diagrams, diffusion, interfaces and microstructures, solidification, and theory of phase transformation. Special emphasis will be on the structure-property relationships of (bio)polymers, (nano)composites, and their structure property relationships.
Grading status: Letter grade
Same as: MTSC 780, BMME 780, PHYS 780.

CHEM 781. Seminar in Physical Chemistry. 2 Credits.
Graduate standing required. Two hours a week.
Grading status: Letter grade.

CHEM 783. Special Topics in Physical Chemistry. 0.5-21 Credits.
Permission of the instructor. Modern topics in physical chemistry, chemical physics, or biophysical chemistry. One to three lecture hours a week.
Grading status: Letter grade.

CHEM 786. Special Topics in Physical Chemistry. 0.5-21 Credits.
Permission of the instructor. Modern topics in physical chemistry, chemical physics, or biophysical chemistry. One to three lecture hours a week.
Grading status: Letter grade.

CHEM 791. Special Topics in Chemistry. 1-4 Credits.
Selected research-level, cross-disciplinary topics in modern chemistry.
Grading status: Letter grade.

CHEM 921. Research Methodology and Seminar in Polymer/Materials Chemistry. 1-21 Credits.
Seminar and directed study on research methods of polymer/materials chemistry. This course provides a foundation for master's thesis or doctoral dissertation research.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

CHEM 931. Research Methodology and Seminar in Biological Chemistry. 1-21 Credits.
Seminar and directed study on research methods of biological chemistry. This course provides a foundation for master's thesis or doctoral dissertation research.
Grading status: Letter grade.

CHEM 941. Research Methodology and Seminar in Analytical Chemistry. 1-21 Credits.
Seminar and directed study on research methods of analytical chemistry. The course provides a foundation for master's thesis or doctoral dissertation research.
Grading status: Letter grade.

CHEM 951. Research Methodology and Seminar in Inorganic Chemistry. 1-21 Credits.
Seminar and directed study on research methods of inorganic chemistry. The course provides a foundation for master's thesis or doctoral dissertation research.
Grading status: Letter grade.

CHEM 961. Research Methodology and Seminar in Organic Chemistry. 1-21 Credits.
Seminar and directed study on research methods of organic chemistry. The course provides a foundation for master's thesis or doctoral dissertation research.
Grading status: Letter grade.

CHEM 981. Research Methodology and Seminar in Physical Chemistry. 1-21 Credits.
Seminar and directed study on research methods of physical chemistry. The course provides a foundation for master's thesis or doctoral dissertation research.
Grading status: Letter grade.

CHEM 992. Master's (Non-Thesis). 3 Credits.

CHEM 993. Master's Research and Thesis. 3 Credits.
Prerequisite, CHEM 921, 931, 941, 951, 961, or 981.
Repeat rules: May be repeated for credit.

CHEM 994. Doctoral Research and Dissertation. 3 Credits.
Prerequisite, CHEM 921, 931, 941, 951, 961, or 981.
Repeat rules: May be repeated for credit.

DEPARTMENT OF CITY AND REGIONAL PLANNING (GRAD)

Contact Information

Department of City and Regional Planning
Visit Program Website (http://www.planning.unc.edu)

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The Department of City and Regional Planning (DCRP) at the University of North Carolina at Chapel Hill was established in 1946. It is consistently ranked among the top ten planning programs in the U.S. As one of the oldest programs in the country, it is widely respected globally. The original roots of the program were grounded in ideas about regionalism, broad-scale development planning, and the application of social science methods to practical problems of government. This was the first planning department in the country to be established with its principal university base in the social sciences, rather than in landscape design, architecture, or engineering. The department has retained and strengthened that social science legacy through its faculty's multidisciplinary research and teaching programs.

At the start of the program, planning was defined as "the union of modern social science, design, and engineering. It utilizes social science techniques to analyze the adjustments between people and their physical environment, and adjustments among people in their efforts to meet human needs. Through the planning process, ways and means of meeting these needs are developed through social organization and the application of design and engineering techniques."

Today, the department has broadened its scope to include urban, state, and community planning and to cover physical, social, economic, and natural environmental concerns. The implementation and management aspects of planning—carrying out public policy through programs, projects, budgeting and finance, regulatory controls, and other actions—are also emphasized.

Whether the objectives are improved physical, social, economic, or environmental conditions or more efficient and equitable policies and programs, planning is a way to effectively marshal resources to create more livable communities for all segments of the population. The professional planner combines an understanding of urban and regional theory grounded in a spatial context with a grasp of the planning and management methods necessary to guide decision-making toward desired goals. These skills have taken on added importance with the emergence of expanded state and local responsibilities and increased public-private development ventures.

Graduates of the program apply their professional knowledge in a variety of organizations and settings. To be an effective professional in these varying contexts requires a continuously updated knowledge base; therefore, the practitioner must be supported by active researchers. Thus, the overall mission of the department is twofold: to educate practitioners and researchers who will become tomorrow's leaders in planning and to expand the frontiers of knowledge about the effects of public and private actions on development processes through faculty research and service.

The state of North Carolina, the Research Triangle region, and the community of Chapel Hill are ideally suited to serve as the home base of a nationally ranked program in city and regional planning. The UNC–Chapel Hill campus is 30 miles west of Raleigh, the state capital, and the location of many agencies of state government. Through research projects, internships, and workshop courses, faculty and students interact with agencies such as Commerce, Community Development, Labor, Environment and Natural Resources, Transportation, and the North Carolina Housing Finance Agency.

The 5,600-acre Research Triangle Park (RTP), which boasts more than 40 large research facilities employing more than 30,000 people, is only 10 miles from campus. RTP, which symbolizes the style of high-tech economic development that emerged in many growing regions in the United States in the late 20th century, continues to be one of the primary engines driving the area's growth. Downtown Raleigh and Durham have faced a resurgence of economic and real estate development in the last two decades. Firms are now moving downtown to enjoy the cultural, food, and environmental amenities that these cities provide. The Raleigh/Durham metropolitan area, of which RTP and the cities of Chapel Hill, Durham, and Raleigh are part, has been identified as one of 30 metropolitan areas in the country that accounted for half of the new jobs in the nation. North Carolina, the nation's ninth most populous state, is growing by about 1.5 percent a year. The Research Triangle area is growing three times as fast. The future urbanization patterns of other areas are evident in the Research Triangle area.

Facilities and Equipment

The Department of City and Regional Planning is housed in New East, which contains a computer laboratory, lecture and seminar rooms, and offices. Additional computer facilities and geographic information systems resources are available to students through the Odum Institute for Research in Social Science and throughout the campus in the UNC–Chapel Hill computing laboratories.

Graduates of the Department

During the past 60 years, students have entered the department from all parts of the United States and the world. The educational backgrounds of alumni who now hold positions of responsibility in the profession cover a wide range of undergraduate fields. Among them are architecture, biology, botany, business, economics, engineering, forestry, geography, history, landscape architecture, philosophy, political science, public policy analysis, psychology, public administration, sociology, and urban studies.

Graduates hold positions as directors of planning in the planning departments of small and large cities and as directors of state and regional planning programs. Graduates work as associate and assistant planners in city, county, metropolitan, and regional planning agencies; in housing and urban development agencies; in various branches of the federal service; in community-based organizations and associations; in research organizations; and in private development firms and banks. Finally, graduates are also employed as private consultants; as planning

advisors to communities and developing areas; and as deans, chairs, and faculty members of educational institutions.

The Planning Profession and Employment Opportunities

During the past 30 years the field of planning has expanded considerably. The planning function remains a central part of municipal, county, and state government. Planning agencies operate within the framework of metropolitan, regional, and national governmental programs. Planning expertise is now essential in nonprofit and community-based development organizations, consulting firms, advocacy groups, and other private organizations.

This period of increasing planning activity has broadened the scope of planning. In addition to design, research, and analysis, present-day planning functions include program management and implementation activities within public agencies and private organizations, as well as coordination between government and business. Planners are increasingly called upon to lead analysis teams, to mediate conflicts, to advise decision makers of project impacts, and to package development proposals.

Employment opportunities in planning are varied. In general, the work involves collection and processing of data; physical, environmental, and socioeconomic analysis; the preparation and evaluation of alternative proposals; and the formulation and implementation of programs for action.

As a consequence of the growth of planning activities throughout the world, adequately trained and qualified members of the profession are in demand in this country and abroad.

Equally important to the advancement of the field is the increasing need for advancing theory and knowledge in urban and regional development and for motivated teachers of planning. There has been a steadily increasing demand for teachers and researchers among universities and research organizations in the United States, Canada, and overseas.

Together with the faculty, hundreds of the department's 1,800 alumni in all parts of the country form an effective job referral and placement network for new and old graduates alike. Large numbers of our graduates in such key metropolitan centers as Boston, New York, the District of Columbia, Atlanta, Miami, Chicago, and on the West Coast provide invaluable assistance to students in their initial job searches and throughout their professional careers. Alumni keep in touch with the department and each other through the alumni listserv and through social media.

Application and Admission

Applications for the fall semester must be received by the posted deadlines to be considered for fellowships offered by The Graduate School and to ensure first consideration for departmental fellowships, assistantships, and other financial aid. Applicants are notified of admission sometime in February. Financial aid decisions are made by mid-March, and the admissions process is fully completed by early May.

Forms and instructions for application are available online at the department's Web site (http://planning.unc.edu/admissions) and at The Graduate School's Web site (http://gradschool.unc.edu/admissions). Each applicant is required to pay a nonrefundable fee when submitting an application.

Applicants are advised to apply for admission as early as possible. Open-house weekend, hosted by the department each March, provides admitted applicants an opportunity to learn about the department and discuss their professional interests with faculty and enrolled students. For more admissions information, see the department's admissions Web site (http://planning.unc.edu/admissions).

Admission Requirements

All prospective students must hold a bachelor's degree from an accredited college or university. The educational backgrounds of applicants cover a variety of academic fields, work experiences, ethnic backgrounds, and geographic locations.

Applicants are required to take the Graduate Record Examination (GRE). The GRE should be taken as early as possible. It is administered in conveniently located centers throughout the United States and in many other countries. Appointments are scheduled on a first-come, first-served basis. Students should register early to get their preferred test date and to receive test preparation material in time to prepare for the test. Applicants may register by phone, mail, or fax. Information on the GRE is available from the admission offices of most colleges and universities, or by writing to Graduate Record Examinations, CN 6000, Princeton, NJ 08541-6000, or from the GRE Web site (http://www.ets.org). GRE scores are recognized as contributory, not determinative, evidence of the applicant's qualifications.

Admission Decisions

The Graduate School makes admissions decisions on the basis of recommendations submitted by the department. In making admissions recommendations, a student/faculty committee reviews all applicants in terms of established department policy. The department considers all credentials submitted as part of the application. No single factor is regarded as qualifying or disqualifying. Factors considered in the review of all applications include the grades and academic transcript, GRE scores, references, strength of courses, undergraduate institution, professional work experience, and statement of interest. The statement of interest should demonstrate understanding of and commitment to the planning field. The student's overall academic record should be strong.

The department has a strong commitment to increasing diversity and providing opportunities for underrepresented minorities to enter the planning profession. We admit students from a variety of academic fields, work experiences, ethnic backgrounds, and geographic locations. Most successful applicants have planning-related work experience.

Transfer Credit

Students desiring to transfer to UNC–Chapel Hill from another graduate planning program may do so if they meet the admission requirements. Courses submitted for transfer must be reviewed and approved by the UNC–Chapel Hill faculty. The maximum credit that may be transferred from another program is nine semester hours for the master's degree.

Similarly, students wishing to transfer non-planning graduate coursework taken elsewhere may do so up to a maximum of 10 semester credit hours, provided that the courses were not credited to another degree, that a grade of B or greater (or its equivalent) was received, and that the courses are judged by the department to be appropriate to the elective requirements of the student's program at UNC–Chapel Hill. Graduate courses taken as an undergraduate are not transferable.

Students in Other Departments

Students taking degrees in other departments may be admitted to courses in city and regional planning, provided that they have the necessary prerequisite training and permission of the instructor. Courses are also open to undergraduate students. Priority is given to students minoring in urban studies and planning.

Degrees Offered

The department offers two degrees: the master of city and regional planning (M.C.R.P.) and the doctor of philosophy (Ph.D.) in planning. The two-year master's degree program prepares students for the professional practice of planning. The Ph.D. program prepares students for careers in research and university teaching in planning. The two graduate degree programs are largely independent.

The Professional Master's Degree Program

The program leading to the degree of master of city and regional planning prepares the candidate for professional planning practice. The curriculum covers social and institutional problems and provides students with training in planning, public policy research, and management skills.

Satisfactory completion of the degree requires completion of a minimum of 51 credit hours, including an area of specialization and a master's project in that area. The normal course load is 12 to 15 credit hours per semester. Thirty-nine of the required 51 credits must be taken in the Department of City and Regional Planning.

Coursework for the degree is divided into core requirements, area of specialization, and electives. Each student is assisted by a faculty advisor in designing an educational program. The advisor helps select courses appropriate for the student's educational interests and goals.

General Course Requirements

All master's degree students are expected to meet certain general course requirements. These consist of courses covering planning theory, urban spatial theory, applied microeconomics, analytical methods, law, and a planning workshop. These basic course topics constitute a core of knowledge and skills necessary to completion of the master's degree program.

The planning theory requirement is met by completing PLAN 704. The analytical methods requirement is met by completing PLAN 720. PLAN 714 fulfills the urban spatial theory requirement. The economics requirement is met by completing PLAN 710. All students are required to take a law course. There are many ways to fulfill this requirement. The department offers PLAN 724 (Law for Planners) once a year. Students should consult their advisors and instructors in other programs (e.g., LAW and MBA) to ensure that they can enroll in specific courses. Students enroll in a planning workshop (PLAN 823) during their second year.

Areas of Specialization

Each student develops an area of specialization in planning in consultation with faculty advisors. The area of specialization identifies the fields of professional practice in which the student expects to develop competence and begin a professional career.

Areas of specialization offered by the department reflect a combination of current practice, employment opportunities, available faculty resources, and longer-term societal needs. As these factors change, specialization content is adjusted. Specialization offers different blends of technical knowledge, planning and management skills, philosophies about the role of the planner, and theories for understanding relevant problems and contexts.

The department offers four specializations associated with professional planning practice. Sustainable and equitable development are overarching concepts for these specializations. Each emphasizes equity, environmental quality, economic viability, and social participation, and grapples with the interconnections among these dimensions.

- Economic development focuses on planning for functional and sustainable regional economies and issues of income and jobs for central city areas.
- Housing and community development is concerned with the supply of affordable housing, the revitalization of urban neighborhoods, project development, and central city redevelopment.
- Land use and environmental planning addresses growth management at the urban and regional scales, environmental management, and policy analysis with emphasis on water resources.
- Transportation planning provides concepts and tools relevant to transportation policy and planning and in-depth knowledge of the reciprocal relationship between transportation decisions and land development.

It is also possible for master's students in city and regional planning to take additional courses in other University departments. These courses could be part of University-wide programs, such as graduate certificate programs in international development and in geographic information systems, or as part of a program in a given department such as the Department of Public Policy's minor. Taking a real estate or urban design track within the Department of City and Regional Planning is also an option.

Generally, specialization courses account for 15 credit hours. Thus, in the 51-credit-hour program, about two-thirds of the credits fulfill basic requirements or specialization requirements, while the rest are electives chosen by the student in consultation with faculty advisors.

General Electives

Additional courses are required beyond the general required courses and courses in the area of specialization. General electives may be used to

1. complement and support the area of specialization,
2. specialize in another area of professional planning,
3. develop skills in a discipline (e.g., economics, design, management) or another professional program represented on campus (e.g., public administration, health administration, environmental engineering, or business), or
4. develop general competence for professional practice through courses selected both within the department and from the regular offerings of the University.

Up to 12 credits may be taken outside the department.

Summary of Course Requirements

Requirement	Total Credits	# of Credits That Must Be Taken in DCRP	# of Credits That May Be Taken Outside of DCRP
Planning Theory	3	3	0
Urban Spatial Structure	3	3	0

Economic Theory	3	3	0
Planning Methods	3	3	0
Law	3	0	3
Problem-solving Workshop	3	3	0
Area of Specialization	15	12-15	0-3
Elective/ Supporting Courses	15	6-9	9-12
Masters Project	3	3	0

Master's Project

The required master's project constitutes original work involving substantial independent research and analysis of a topic related to planning practice. The requirement may be met by a paper of standard format. The requirement can also be fulfilled with a product in some other form, such as a plan or audiovisual presentation. Ordinarily students submit an individually prepared paper. The student submits the paper topic and outline to the director of the student's focus area. The director approves the topic and assigns a faculty member to serve as major advisor for the project. The student may invite another faculty member to serve as a reader. Both must approve the final project. The project is completed during the final semester in residence and is filed by the department as part of the permanent record of the student's work.

The Doctoral Program

The doctoral program in planning provides training in research methods, planning theory, and areas of specialization that enable graduates to contribute to the development of substantive theory, knowledge, and scholarship in planning; to formulate and evaluate innovative public policy; and to administer research programs in domestic and international contexts. The program is small but highly selective and individualized. It is ideal for mature students from a variety of backgrounds.

The Ph.D. degree requires a minimum of 36 credits. A master's degree in planning is not required, although most doctoral students have previous graduate work or work experience in planning or a related field. Students must fulfill four semesters of residence. The department accepts graduate transfer credits but requires three Ph.D. seminars and an advanced planning theory course. The department does not require a foreign language. It strongly encourages both research and teaching experience during residency.

In practice, doctoral candidates who hold master's degrees in planning or a related field generally require four semesters of formal course work in residence before beginning the dissertation. Other candidates may require five or more semesters, depending on their preparation. Preparation of a dissertation proposal and subsequent research each take an additional year.

Each student develops an individualized course of study to reflect a specific area of interest and career aspirations. Areas of specialization and appropriate course work are determined jointly by the student, program advisor and the student's program committee. Programs are designed to meet the student's needs and build on prior academic training, for which substantial departmental or university faculty resources are available. Courses in the area of specialization must be mutually reinforcing and coherent; must prepare the student for expertise in some body of knowledge, methodology, or problem area; and must provide the student with the appropriate research methods, research design and knowledge base to do scholarly research. The comprehensive exams, taken at the end of coursework, require knowledge of planning theory, research design, research methods and the student's specific area of specialization.

A student may take a formal minor in another discipline with the consultation and approval of the appropriate department and the student's program committee. The minor emphasizes the achievement of methodological and related skills necessary to extend the student's research capabilities within a chosen area of specialization. Supportive complementary relationships between the two program components must be demonstrated.

It is important that the Ph.D. Admissions Committee be able to identify an applicant's program interests from application materials submitted for review to The Graduate School and to the department. In addition to any supplemental material the applicant may wish to submit in support of the application, the statement called for in the department's supplemental application should describe the proposed area of concentration and specific program coursework and research interests, and provide information on relevant prior academic and professional training. The admissions process consists of two related phases. First, the Admissions Committee renders a judgment about the academic qualifications of the Ph.D. applicant. Second, if academic qualifications are met, the committee attempts to identify the applicant's program interests and the stage of development of those interests, and then considers the extent to which departmental and university resources may be marshaled in support of those stated interests. Thus, academic qualifications are necessary but are not the only basis for admission into the doctoral program. The applicant's interests must be clear and university resources must be supportive to ensure the development of a strong Ph.D. program.

Persons wishing to be considered for admission to the doctoral program and for fellowships and assistantships that may be available to doctoral candidates are advised to communicate with the department (potential advisor and Ph.D. program director) to discuss program requirements and interests prior to making formal application to admission. While the university's financial awards are made in the spring semester each year, the deadline for applications for certain fellowships available to Ph.D. candidates is in December of the year preceding the August in which the applicant plans to begin the doctoral program. Applicants benefit by a visit to the department.

Dual-Degree Programs

Program in Law and Planning

Under a dual-degree program sponsored by the School of Law and the Department of City and Regional Planning, students may pursue the J.D. and M.C.R.P. degrees together. Taken concurrently, the two degrees may be obtained in four years rather than the five years ordinarily required. The program seeks to develop professionals capable of dealing with both the legal and planning aspects of urban and regional development and policy. Coursework is designed to prepare students for a variety of professional roles in which knowledge of planning methodology and process, coupled with the analytical skills and professional expertise of the lawyer, are essential. Graduates join private law firms, consulting firms, and public legal and planning staffs.

To enter this program, students must apply separately to the School of Law and to the Department of City and Regional Planning, and must be accepted independently by both. Students entering the program

spend their entire first year in either the planning department or the law school, and students must make this choice at the time of admission. The second year is normally spent full time in the program not selected in the first year. After the first two years, the student has an additional 43 semester credits to complete in the law school and 12 semester credits to complete in planning.

To request an admission packet for the law school, please contact

Admissions Office
School of Law
Campus Box 3380
The University of North Carolina at Chapel Hill
Chapel Hill, N.C. 27599-3380

Program in Business and Planning

The Kenan–Flagler Business School and the Department of City and Regional Planning offer a dual-degree program leading to the M.B.A. and M.C.R.P. degrees, usually in three years. The program builds management and planning skills that enable graduates to pursue rewarding, flexible, and socially useful careers in the private, nonprofit, or public sectors. Graduates work in real estate and economic development consulting, financial institutions, and entrepreneurial firms. Increasingly, applicants to the business and planning program want to pursue career paths that combine planning and management and seek the flexibility to move between jobs in the public and private sectors.

To enter this program, students must apply separately to both the Department of City and Regional Planning and the Kenan–Flagler Business School, and must be accepted independently by both. Students entering the program spend their entire first year in either the planning department or the business school. The second year is spent full time in the other program. In the third year, students take courses in both business and planning. Sufficient electives can be taken in planning and business so that a curriculum can be tailored to each student's career objectives. Admission to the business school is based on demonstrated potential for responsible leadership, the quality of the student's academic transcripts, and the applicant's score on the Graduate Management Admission Test (GMAT), administered by the Educational Testing Service of Princeton, NJ.

To request an admission packet for the Kenan–Flagler Business School, please contact

Director of M.B.A. Admissions
The Kenan–Flagler Business School (http://www.kenan-flagler.unc.edu)
Campus Box 3490, McColl Building
The University of North Carolina at Chapel Hill
Chapel Hill, N.C. 27599-3490

Program in Public Administration and Planning

Planners often gravitate to management positions in local and state government that require knowledge of budgeting, personnel, and government administration and politics. City and county managers grapple with planning and development issues, which constitute a large portion of local government agendas. This dual-degree program prepares professionals who want the flexibility of moving between planning and management positions in government. The Department of City and Regional Planning and the Public Administration program in the School of Government collaborate to enable students to receive both the M.C.R.P. and the M.P.A. degrees in three years and a summer that includes a professional field experience in public administration.

The intent of the combined program is to ensure that students have two complete and complementary, but distinct, areas of training. The M.P.A. requirements ensure adequate training in public management. The M.C.R.P. requirements ensure adequate training in core planning knowledge and skills, and in an area of planning specialization.

Students must obtain admission to both the M.P.A. and M.C.R.P. programs independently. With prior approval from faculty advisors in both programs, students may then count certain courses toward both degrees. The combined program requires a total of 75 semester credit hours. Students are advised to gain approval from faculty advisors for their specific program of courses during the first semester of residence to ensure that they can meet all requirements of both programs within three years.

To request an admission packet for the Master of Public Administration program, please contact

Heather Duhart
Director of Student Services and Operations
Master of Public Administration Program (http://www.mpa.unc.edu)
School of Government
CB # 3330 Knapp–Sanders Building
The University of North Carolina at Chapel Hill
Chapel Hill, N.C. 27599-3330
Phone: (919) 843-1727
E-mail: duhart@sog.unc.edu

Program in Public Health and Planning

The intellectual, professional, and historical connections between public health and city planning have assumed new urgency in the 21st century, as the challenges of chronic illness, urban livability, and public safety have come to the fore. The built environment is increasingly seen as an important factor influencing physical activity, which in turn has positive impacts on health promotion and disease prevention. The growth and redevelopment of urban areas impact public health and safety in many ways. The dual degree program between the Department of City and Regional Planning and the Gillings School of Global Public Health (SPH) allows students to connect the public health and urban planning fields through professional training that will encourage greater intersections in professional practice.

To enter these programs, students must apply separately to the Department of City and Regional Planning and the departments in the Gillings School of Global Public Health and must be accepted independently by both. Students entering the program spend their entire first year either in SPH or the Department of City and Regional Planning. The second year is spent full time in the other program. In the third year, students take both public health and planning courses. Students should be able to complete both programs in three years (instead of four years). At the end of the program students are expected to complete master's projects or other capstone requirements for each department that demonstrate mastery of the two fields and an understanding of the interconnections between the fields.

For questions about the dual degree with public health, please contact

Meg Landfried
Department of Health Behavior (http://www.sph.unc.edu/hbhe)
CB# 7440, Rosenau Hall
The University of North Carolina at Chapel Hill
Chapel Hill, N.C. 27599-7440
Phone: (919) 966-0057

E-mail: landfried@unc.edu

Program in Landscape Architecture and Planning

The dual-degree program in landscape architecture and planning strengthens the design dimension of the planning curriculum, and creates a venue for working closely with the College of Design at North Carolina State University. The Department of Landscape Architecture offers two graduate program tracks leading to the master of landscape architecture (M.L.A.), both of which emphasize creative problem solving and a long-term commitment to responsible design. The curriculum provides the professional skills needed to deal with the human and natural forces that shape the land. The department is especially concerned with the protection, restoration, enhancement, and regeneration of the natural and cultural environments in urban, rural, and wilderness settings.

To enter this program, students apply to each department separately and must gain admission to both. The amount of time required for the M.L.A. will depend on whether the student is pursuing the First Professional Degree track (82 credits) or Advanced Studies track (42 credits). Usually students will be able to reduce the time needed to attain both the M.C.R.P. and the M.L.A. by about one year by taking coursework in each department that counts toward the other department's degree program.

To request an admission packet for the Department of Landscape Architecture, please contact

Pam Christie-Tabron
Department of Landscape Architecture
220 Brooks Hall, Box 7701
College of Design (http://ncsudesign.org/content)
North Carolina State University
Raleigh, N.C. 27695-7701
Phone: (919) 515-8308
E-mail: pamela_christie@ncsu.edu

Research Programs in Urban and Regional Studies

Through the Center for Urban and Regional Studies, the Water Resources Research Institute, the Carolina Population Center, the Institute for the Environment, the Institute for Economic Development, the Highway Safety Research Center, and members of the faculty and graduate students in the Department of City and Regional Planning and in related departments collaborate on research in a range of subject areas concerning planning, human behavior, and the environment.

Established in 1953 and later expanded under a grant from the Ford Foundation, the program of the Center for Urban and Regional Studies is concerned with theoretical and empirical research in urban processes and area development. The center has a permanent staff for planning and administration of its program and for the development of an interdisciplinary research-oriented program of services to local and state governments in North Carolina and elsewhere. The department's faculty use the center to pursue research interests and collaborate with faculty members of other University departments on research projects.

In 1964 the Water Resources Research Institute was established to support research on all aspects of water resources, including the planning, programming, and analysis of urban and regional systems for development and control of quantity and quality of water and related land use. The institute serves as a focal point for faculty and student research and interdisciplinary seminars relating to water resources.

The Carolina Population Center (CPC), established in 1966, provides coordination of the interdisciplinary program in population research and training. The center provides population research services to faculty doing research in the social, behavioral, and health sciences in the United States and abroad. Departmental faculty and students are engaged in international research through the CPC.

The Institute for Economic Development was created in 1971 within the Extension Division of the University to sponsor the Basic Economic Development course. Now under the auspices of the Department of City and Regional Planning, the institute promises to strengthen the department's research and teaching mission and to enlarge its service capacity.

The Institute for the Environment is UNC—Chapel Hill's focal point for interdisciplinary environmental research, educational programs, and service activities for faculty, staff, and students. As such, the institute leverages the collective strength of UNC's environmental expertise to reach beyond campus to develop and implement innovative solutions to the world's environmental and energy challenges. Its mission is

a. to strengthen environmental research capacity across UNC by supporting a multidisciplinary community of scholars that enhances collaboration, increases sharing of knowledge, and identifies solutions to the world's critical environmental problems.
b. to work in partnership across UNC and external partners to coordinate and deliver 21st-century educational programs that provide students with the experience and skills to thrive in a growing global economy; and
c. to put new environmental knowledge into action by engaging and serving communities, here in North Carolina and around the world.

The Highway Safety Research Center (HSRC) is dedicated to improving transportation safety, with a major emphasis on highway safety. The center conducts basic and applied research that increases knowledge and contributes to reducing death, injury, and related societal costs. HSRC works to translate developed knowledge into practical interventions that can be applied at local, state, national, and international levels. HSRC conducts research in the three major areas of the highway safety problem: the driver/occupant, the vehicle, and the roadway. HSRC produces guidebooks, brochures, how-to manuals, news releases, public service announcements, and newsletters to communicate highway safety information to research colleagues, safety advocates, government officials, and motorists.

In addition to these activities organized under an institute or center, faculty members are engaged in research projects administered by the department.

Several other facilities in the nearby Research Triangle Park enrich and support the department's teaching and research programs:

The Research Triangle Institute (RTI) is a not-for-profit corporation that conducts research under contract to departments of federal, state, and local governments; public service agencies; foundations; and industry clients ranging from local firms to national corporations. RTI was created as a separately operated affiliate of the three major universities that form the Research Triangle. Initial start-up funding for RTI was provided through a grant from the Research Triangle Foundation. The institute is organized into major groups whose areas of capability span social

and economic systems and human resources, statistical sciences, survey research, chemistry and life sciences, energy, engineering, and environmental sciences.

The Environmental Research Center of the U.S. Environmental Protection Agency (EPA), the largest field installation of the EPA, was dedicated in December 1971. Today it is an international center of scientific expertise in environmental research.

The Triangle Universities Center for Advanced Studies, Incorporated (TUCASI) represents an additional effort in the Research Triangle to capitalize on the presence in a small radius of three major doctoral research institutions, their facilities, libraries, and auxiliary resources. TUCASI is a joint activity of the University of North Carolina at Chapel Hill, Duke University in Durham, and North Carolina State University in Raleigh. TUCASI is the parent body that sponsors development of advanced study enterprises on its 120-acre campus within the Research Triangle Park. The center, chartered in 1975, is governed by a board of trustees, representing the constituent universities, the Research Triangle Foundation, and elected members.

The National Humanities Center (NHC) was the first resident activity on the TUCASI campus. The center opened in 1978 as an institute for advanced study in history, literature, philosophy, and other fields of the humanities. Each year, approximately 45 leading scholars from the United States and other nations come to the NHC to pursue individual research and engage in interdisciplinary seminars, lectures, and conferences. Their work results in books, articles, and other contributions to learning. Grants from major foundations, corporations, the National Endowment for the Humanities, the major universities in the Triangle, and individuals support the center's program funding and administrative costs.

The UNC Institute for Transportation Research and Education (ITRE) is part of North Carolina State University. Its responsibilities include facilitation of transportation-related programs throughout the 17 UNC system campuses. Included among ITRE's activities are workshops, short courses, research projects, and training programs for transportation professionals throughout North Carolina.

Professors

Emil E. Malizia, Real Estate Development, Economic Development and Finance
Noreen McDonald, Transportation Planning
Roberto G. Quercia, Housing Finance, Housing Policy
William M. Rohe, Social Behavioral Aspects of Urban Development, Neighborhood Planning and Development
Yan Song, Geographic Information Systems, Urban Spatial Analysis, Land Use and Site Planning
Dale Whittington (joint appointment with the Gillings School of Global Public Health), Environmental Planning, Public Investment Theory, International Planning

Associate Professors

Todd BenDor, Land Use and Environmental Planning and Policy, Spatial Analysis
Nikhil Kaza, Land Use and Environmental Planning and Policy, Energy and Environment, Planning Theory
William Lester, Economic Development, Urban Spatial Structure
Nichola Lowe, Economic Development, Labor Markets, Institutions
Mai Nguyen, Housing and Community Development
Meenu Tewari, Microeconomics, International Planning

Assistant Professors

Danielle Spurlock, Land Use and Environmental Planning, Public Health, Social Justice, and Dispute Resolution
Alainna Thomas, Transportation Planning
Andrew Whittemore, Land Use and Urban Design

Adjunct Professors

Michele Berger, Women's and Gender Studies
Maryann P. Feldman, Public Policy, Innovation, Entrepreneurship, and Economic Growth
Jessie White, School of Government

Associated Faculty

David J. Hartzell, Real Estate Finance
Judith W. Wegner, Land Use and Local Government Law

Professors Emeriti

Richard N.L. Andrews
Raymond J. Burby
F. Stuart Chapin Jr.
David R. Godschalk
Edward J. Kaiser

Please visit the department's Web site for a current listing (http://planning.unc.edu/academics) of graduate and undergraduate courses offered.

PLAN

Advanced Undergraduate and Graduate-level Courses

PLAN 420. Community Design and Green Architecture. 3 Credits.
The impact of building on the environment and health will be examined by looking at the major areas of: land use planning, water resource use, energy, materials and indoor environment.
Grading status: Letter grade
Same as: ENEC 420.

PLAN 428. Global Cities: Space, Power, and Identity in the Built Environment. 3 Credits.
This course addresses questions of power, politics, and identity in the urban environment, with a focus on the emergence of key selected global cities and the processes that both created them historically and which are currently transforming them locally and globally.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: GEOG 428.

PLAN 491. Introduction to GIS. 3 Credits.
Stresses the spatial analysis and modeling capabilities of organizing data within a geographic information system. (GISci)
Requisites: Prerequisite, GEOG 370; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: GEOG 491.

PLAN 526. Principles of Public Finance for Public Policy and Planning. 1.5 Credit.
Provides the foundation of state and local government finance necessary to understand new developments in the provision of infrastructure for economic development.
Grading status: Letter grade.

PLAN 547. Energy, Transportation, and Land Use. 3 Credits.
This course explores the reciprocal connections between energy (production/conversion, distribution, and use), land use, environment, and transportation. Evaluation of federal, state, and local policies on energy conservation and alternative energy sources are emphasized. Students gain skills to analyze impacts, interdependencies, and uncertainties of various energy conservation measures and production technologies.
Grading status: Letter grade
Same as: ENEC 547.

PLAN 550. Evolution of the American City. 3 Credits.
Examines shaping the urban built environments of the United States from the colonial era to present day. Critically examines forces that shaped our cities, and studies the values, ideals, and motivations underlying efforts to plan and direct physical development of American cities.
Gen Ed: SS.
Grading status: Letter grade.

PLAN 574. Political Economy of Poverty and Inequality. 3 Credits.
Introduces students to the political economy of poverty alleviation programs. Uses comparative cases to explore what types of projects, tasks, and environments lead to effective and equitable outcomes, and why.
Grading status: Letter grade.

PLAN 585. American Environmental Policy. 3 Credits.
Intensive introduction to environmental management and policy, including environmental and health risks; policy institutions, processes, and instruments; policy analysis; and major elements of American environmental policy. Lectures and case studies. Three lecture hours per week.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: ENVR 585, ENEC 585, PLCY 585.

PLAN 590. Special Topics Seminar. 1-9 Credits.
Original research, fieldwork, readings, or discussion of selected planning issues under guidance of a member of the faculty.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

PLAN 591. Applied Issues in Geographic Information Systems. 3 Credits.
Applied issues in the use of geographic information systems in terrain analysis, medical geography, biophysical analysis, and population geography.
Requisites: Prerequisite, GEOG 370 or 491.
Grading status: Letter grade.

PLAN 596. Independent Study. 1-9 Credits.
This course permits full-time undergraduate students enrolled in the Department of City and Regional Planning who wish to pursue independent research or an independent project to do so under the direction of a member of the department faculty.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

PLAN 636. Urban Transportation Planning. 3 Credits.
Fundamental characteristics of the urban transportation system as a component of urban structure. Methodologies for the analysis of transportation problems, planning urban transportation, and the evaluation of plans.
Grading status: Letter grade.

PLAN 637. Public Transportation. 3 Credits.
Alternative public urban transportation systems including mass transit, innovative transit services, and paratransit, examined from economic, land use, social, technical, and policy perspectives.
Grading status: Letter grade.

PLAN 638. Pedestrian and Bike Transportation. 3 Credits.
This graduate-level course examines the importance of multimodal transportation planning and provides a comprehensive overview of best planning practices to support increased walking and bicycling.
Grading status: Letter grade.

PLAN 641. Watershed Planning. 3 Credits.
This course explores the functions of ecosystems, land development activities that impact such functions, and the land use management tools to create strategies for mitigating and restoring environmental damage. Course goals include understanding the ecological context of planning and how ecological principles may inform planning decisions. Prepares planners to engage effectively with biologists, natural resource managers, park managers, and other professionals from the natural sciences.
Grading status: Letter grade
Same as: ENEC 641.

PLAN 651. Urban Form and the Design of Cities. 3 Credits.
Lecture course on comparative urbanism and the global evolution of the city form. Examines values and ideals embedded in urban landscapes, seeking to understand how social, economic, and political forces have influenced the development of cities through history.
Grading status: Letter grade.

PLAN 652. Site Planning and Urban Design. 3 Credits.
This course examines site planning as a means of addressing concerns related to urban development including hydrology, vegetation, land use, urban form, access, regulation, and community priorities. Students conduct an analysis of a site and propose a plan for a hypothetical mixed-use development. Students learn the basics of the 3D modeling software, SketchUp.
Grading status: Letter grade.

PLAN 662. Gender Issues in Planning and Development. 3 Credits.
Permission of the instructor required for undergraduates. Examination of the environmental and health risks, policy institutions, processes, instruments, policy analysis, and major elements of American environmental policy. Lectures and case studies.
Grading status: Letter grade
Same as: WGST 662.

PLAN 663. Diversity and Inequality in Cities. 3 Credits.
Permission of instructor needed for undergraduates. Introduces students in planning to issues related to diversity and inequality. Different aspects of diversity (e.g., gender, class, race, ethnicity, sexuality, nationality/citizenship) will be explored. Examines the relationship between diversity and the unequal distribution of resources and life trajectories.
Gen Ed: SS.
Grading status: Letter grade.

PLAN 672. Urban Data Analytics. 3 Credits.
This is a survey course about different techniques used in assembling, managing, analyzing, and predicting using heterogeneous data sets in urban environments. These include point, polygon, raster, vector, text, image, and network data; data sets with high cadence and high spatial resolution; and data sets that are inherently messy and incomplete. The emphasis is on practical urban analytics.
Grading status: Letter grade.

PLAN 673. Seminar on The Ethics and Politics of New Urban Analytics. 3 Credits.
While there is no consistent definition of what smart cities are, urban spaces blanketed with ubiquitous and heterogeneous sensor networks that are constantly monitoring the vitality of the city are becoming common place. Such continuous surveillance raises deep political and ethical questions as well as questions about institutional reconfiguration. We will examine urban analytics platforms and interrogate them from a variety of lenses, including privacy, equity, and probity.
Grading status: Letter grade.

PLAN 685. Water and Sanitation Planning and Policy in Less Developed Countries. 3 Credits.
Permission of the instructor. Seminar on policy and planning approaches for providing improved community water and sanitation services in developed countries. Topics include the choice of appropriate technology and level of service, pricing, metering, and connection charges; cost recovery and targeting subsidies to the poor; water venting; community participation in the management and operation of water systems; and rent-seeking behavior in the provision of water supplies.
Grading status: Letter grade
Same as: ENVR 685.

PLAN 686. Policy Instruments for Environmental Management. 3 Credits.
Design of public policy instruments as incentives for sustainable management of environmental resources and ecosystems, and comparison of the effects and effectiveness of alternative policies.
Requisites: Prerequisite, ECON 410 or PLAN 710.
Gen Ed: SS.
Grading status: Letter grade
Same as: PLCY 686, ENEC 686, ENVR 686.

PLAN 687. International Development and Social Change. 3 Credits.
Permission of the instructor. Course explores effect of the global economy on national and community development, effect of environmental degradation processes on development, and strategies to guide social change.
Grading status: Letter grade.

PLAN 691H. Honors Seminar in Urban and Regional Studies. 3 Credits.
Permission of the instructor. An overview of the subject matter and methods of investigation for the study of cities and regions. Presentations of original papers prepared by students.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

PLAN 701. Research Methods. 1-6 Credits.
Course combines material learned in other courses (theory/philosophy, methods, and their substantive area of interest). Familiarizes students with the skills necessary to conduct research and critically review and understand evaluation reports.
Grading status: Letter grade.

PLAN 704. Theory of Planning I. 3 Credits.
The logic of planning as a professional activity. Critical overview of current process theories leading students to develop a personal philosophy applicable to their work as planners.
Grading status: Letter grade.

PLAN 710. Microeconomics for Planning and Public Policy Analysis. 3 Credits.
Introduction to principles of demand and supply, elasticity, marginal utility opportunity cost, pricing, production decisions, and profit maximization, cost-benefit analysis, financial appraisal, role of government, and market instruments for environmental protection.
Grading status: Letter grade.

PLAN 714. Urban Spatial Structure. 3 Credits.
Theories and empirical evidence of the contemporary spatial development of metropolitan areas. Industrial, residential, and commercial location; neighborhood change; the role of technological change and public policies; and normative perspectives.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

PLAN 720. Planning Methods. 3 Credits.
Permission of the instructor for undergraduates. Accessing information from conventional and electronic sources, spatial data acquisition, analysis and mapping. Inferential statistics through multiple regression. Microcomputer laboratory.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

PLAN 721. Advanced Planning Methods. 1.5 Credit.
Permission of the instructor for undergraduates. More in-depth treatment of topics covered in PLAN 720. Particular emphasis on techniques of multiple regression analysis, forecasting, categorical data analysis, and spatial data analysis.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

PLAN 722. Systems Thinking and Modeling for Planners. 1.5 Credit.
This course will introduce systems thinking and system dynamics computer simulation modeling, a computer-aided approach to policy analysis and design. The goal of this course is to enhance knowledge and skills in understanding and analyzing the complex feedback dynamics in social, economic, and environmental problems.
Grading status: Letter grade.

PLAN 724. Introduction to Law for Planners. 3 Credits.
Governmental institutions, real property, constitutional law, land use law, and environmental law.
Grading status: Letter grade.

PLAN 725. Development Dispute Resolution. 3 Credits.
Contemporary methods of resolving development disputes through negotiation, bargaining, and mediation. Techniques and skills applicable to solving controversies over planning and implementation of public and private development projects.
Grading status: Letter grade.

PLAN 735. Community Revitalization Applied. 3 Credits.
Students apply their skills in business, planning, or public administration to actual community revitalization projects in North Carolina communities. Projects require an understanding of community development methods, the real estate development process, and public-private partnerships. Students will manage client relationships and learn how their skills contribute to solving community challenges.
Repeat rules: May be repeated for credit. 3 total credits. 1 total completions.
Grading status: Letter grade
Same as: PUBA 735.

PLAN 738. Transportation Policy and Planning. 3 Credits.
Examination of active transportation planning and policy questions: land use relationships, modal comparisons, environmental quality, transportation demand management, paratransit planning, the transportation needs of special populations, and international comparisons.
Requisites: Prerequisite, PLAN 636; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PLAN 739. Transportation Planning Models. 3 Credits.
Permission of the instructor for undergraduates. The transportation planning process; data collection, trip generation, modal choice, trip distribution and assignment. Social, economic, and environmental impacts of transportation. Innovative modeling techniques.
Grading status: Letter grade.

PLAN 740. Land Use and Environmental Policy. 3 Credits.
History, institutional setting, rationale of state and local land use, and environmental policies. Program and policy frameworks, political and market processes, resource utilization concepts, and contemporary development and resource management.
Grading status: Letter grade.

PLAN 741. Land Use and Environmental Planning. 3 Credits.
Methods of land use planmaking. Use of GIS and spreadsheets to analyze land suitability and spatial needs. Preparation of land classification plans, land use design plans, and development management programs.
Grading status: Letter grade.

PLAN 744. Development and Environmental Management. 3 Credits.
Coordination of public powers and private actions to implement development plans and conserve environmental resources. Regulatory, public investment, incentive, and policy instruments used in land use and environmental guidance systems.
Grading status: Letter grade.

PLAN 745. Development Impact Assessment. 3 Credits.
Methods for data management and predictive analysis of the environmental, transportation, and other infrastructure; fiscal and social impacts of land development projects. Impact mitigation measures are also examined.
Grading status: Letter grade.

PLAN 747. Coastal Management Policy. 3 Credits.
Analysis of national and state coastal management laws, policies, and programs. Private sector, interest group, government agency, and public roles in coastal resource allocation. Influence of science, values, and politics.
Grading status: Letter grade.

PLAN 752. Project and Site Planning. 3 Credits.
Techniques of site analysis, project programming, and arrangement of structures on the land. Workshop covering design and review of urban development projects within limitations of regulatory standards and market criteria.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

PLAN 754. Natural Hazards Resilience Speaker Series. 1 Credit.
Invited practitioners and scholars will discuss a range of pertinent topics, including research findings and experience in practice tied to disaster management and climate change adaptation. Speakers will include a range of officials, scholars, private sector representatives, media members, politicians, advocates, community leaders, and members of various professional associations.
Grading status: Letter grade.

PLAN 755. Planning for Natural Hazards and Climate Change Adaptation. 3 Credits.
Introduction to natural hazards risk management planning, including climate change-induced hazards. Areas of study include planning and its application to hazard mitigation and disaster recovery. Emphasis is placed on the connectivity between planning for natural hazards and disasters, climate change adaptation, sustainability, and disaster resilience.
Grading status: Letter grade.

PLAN 756. Survey of Natural Hazards and Disasters. 3 Credits.
Introductory level study of natural hazards and disasters, with an emphasis on the characteristics of natural hazards and how their effects on human settlements. Topics include meteorology, geology, hydrology, engineering and building performance, policy making, planning, and sociology, among other disciplines. Case study based.
Grading status: Letter grade.

PLAN 757. Planning for Historical Preservation. 3 Credits.
Concepts, processes, and policies for historic preservation; its role in the community planning and development process.
Grading status: Letter grade.

PLAN 760. Real Estate Investment and Affordable Housing. 3 Credits.
Fundamentals and techniques of real estate investment analysis, including cases and computer modeling; applications of the public interest in private investment decisions; tax and other public policies influencing real estate investments; and affordable housing.
Grading status: Letter grade.

PLAN 761. Housing and Public Policy. 3 Credits.
A theory-based course in housing and market dynamics; the justification for government intervention and the operations of the mortgage market and construction industry. Students develop skills for housing market and policy analysis.
Grading status: Letter grade.

PLAN 762. Central City Revitalization. 3 Credits.
Analyzes central cities over past twenty years and factors affecting their growth or decline. Analyzes how economic, social, physical conditions of central cities can be improved through large-scale urban-planning efforts.
Grading status: Letter grade.

PLAN 763. Urban Neighborhood Revitalization. 3 Credits.
Social, political, and economic theory of local communities. Models of neighborhood change. Neighborhood revitalization: theoretical aspects; federal, state, and local programs; role of nonprofit organizations; step-by-step process for revitalizing an area.
Grading status: Letter grade.

PLAN 764. Community Development & Revitalization Techniques. 3 Credits.
Community revitalization requires mastery of community development methods, the real estate development process, and public-private partnerships. Techniques include demographic trend analysis, stakeholder identification, government entitlement review, area and parcel analysis, market research, and pro forma financial analysis.
Grading status: Letter grade
Same as: PUBA 734.

PLAN 765. Real Estate Development. 3 Credits.
The dynamics of real property development from the developer's perspective covering market research, government relations, site planning, financing, investment analysis, construction and project management, and marketing.
Grading status: Letter grade.

PLAN 766. Housing Law. 3 Credits.

PLAN 767. Diversity and Inequalities in Cities. 3 Credits.
Introduces students in planning to issues related to diversity and inequality. Different aspects of diversity (e.g., gender, class, race, ethnicity, sexuality, nationality/citizenship) will be explored. Examines the relationship between diversity and the unequal distribution of resources and life trajectories.
Grading status: Letter grade.

PLAN 769. Housing & Community Development Planning and Policy. 3 Credits.
This graduate course will explore issues of housing and community development policy and planning issues at the national, state, and local level in the United States. It will provide an overview of the historic and contemporary housing planning and policy issues that have shaped communities and households.
Grading status: Letter grade.

PLAN 770. Economic Development Policy. 3 Credits.
Introduction to basic theories, concepts, and strategies employed to pursue local and regional economic development. Clarifies similarities and distinctions with related planning perspectives including community development, investigates the economic logic behind various development initiatives, and reviews basic principles for critically examining alternative policies and programs.
Grading status: Letter grade.

PLAN 771. Development Planning Techniques. 3 Credits.
Intermediate and advanced techniques for analyzing the development of local and regional economies. Social accounts, indicator construction, regional input-output models, economic and fiscal impact analysis, labor market analysis, and regional economic forecasting techniques.
Grading status: Letter grade.

PLAN 773. Urban and Regional Economic Development Seminar. 3 Credits.
Fundamental concepts and theories applied to local economic development including growth, trade, product-cycle, flexible specialization, and entrepreneurship theories. Urban and regional economic development issues addressed in the North American, South American, European, or South Asian contexts.
Grading status: Letter grade.

PLAN 774. Planning for Jobs. 3 Credits.
This graduate seminar examines the policy and planning implications of changing labor market conditions and their impact on U.S. workers, especially the working poor.
Grading status: Letter grade.

PLAN 776. Development Finance. 3 Credits.
Community development financial institutions and loan funds for local asset building and wealth creation. Investment analysis to structure and finance local projects. Real estate and business development cases.
Grading status: Letter grade.

PLAN 781. Water Resources Planning and Policy Analysis. 3 Credits.
Water resources planning and management. Federal and state water resources policies. Analytical skills to identify environmental problems associated with urban water resources development.
Grading status: Letter grade
Same as: ENVR 781.

PLAN 785. Public Investment Theory. 3 Credits.
Basic theory, process, and techniques of public investment planning and decision making, involving synthesis of economic, political, and technologic aspects. Theory underlying benefit-cost analysis, adaptation to a descriptive and normative model for planning public projects and programs.
Requisites: Prerequisite, PLAN 710.
Grading status: Letter grade
Same as: ENVR 785.

PLAN 786. Environmental Quality Management. 3 Credits.
Planning and analysis of regional environmental system with a focus on management of mass flows that affect the quality of the regional environment.
Grading status: Letter grade
Same as: ENVR 786.

PLAN 787. Applied Environmental Finance: How to Pay for Environmental Services. 3 Credits.
How can governments, communities, organizations, and businesses fund environmental services? This applied course reviews the diverse tools and strategies that environmental service providers use to pay for programs. The course will focus on environmental services related to: drinking Water, wastewater, storm-water, watershed protection, energy efficiency, renewable energy, sustainability, and wetlands.
Grading status: Letter grade
Same as: PUBA 787, ENVR 787.

PLAN 788. Advanced Economic Analysis for Public Policy I. 3 Credits.
This course introduces microeconomic theory using multivariate calculus and constrained optimization. Topics covered include consumer theory, producer theory, market equilibrium, taxes, and market power. Applied public policy examples are incorporated.
Grading status: Letter grade
Same as: PLCY 788.

PLAN 789. Advanced Economic Analysis for Public Policy II. 3 Credits.
This course provides further applications of economic theory to public policy including risk and uncertainty, information economics, general equilibrium and welfare policy, externalities, public goods and taxation, and game theory.
Requisites: Prerequisite, PLCY 788.
Grading status: Letter grade
Same as: PLCY 789.

PLAN 793. Planning Seminar. 1-15 Credits.
Original research, fieldwork, readings, or discussion of selected planning issues under guidance of a member of the faculty.
Repeat rules: May be repeated for credit. 15 total credits. 15 total completions.
Grading status: Letter grade.

PLAN 800. Research Design. 3 Credits.
This course provides an introduction to research design methods for planning and applied policy research. The design of a research endeavor is arguably the most important part of the investigation, together with what data is collected, how it is collected, and how the data are analyzed.
Grading status: Letter grade.

PLAN 801. Design of Policy-Oriented Research. 3 Credits.
Logic of designing research for the analysis of planning problems and the formulation of public policies. Elements of research design, case study, survey research, quasi-experimental designs, and the social experiment are covered.
Grading status: Letter grade
Same as: PLCY 801.

PLAN 802. Advanced Seminar in Research Design: Data, Methods, and Evaluation. 3 Credits.
Three main objectives: to deepen students' understanding of important issues and topics in the design of empirical research, to further develop students' ability to critically evaluate research designs and policy-related products, and to aid in developing a research paper, dissertation, or other product.
Grading status: Letter grade
Same as: PLCY 802.

PLAN 805. Theory of Planning II. 3 Credits.
Construction of methodologies for evaluating various theories of planning and intensive analysis of the North American planning theory literature. Doctoral-level introduction to the area.
Grading status: Letter grade.

PLAN 823. Planning Workshop. 3 Credits.
Problem-solving, client-based courses designed to give students experience in applying planning theory and methods to actual problem situations in economic development, housing and community development, real estate, environmental planning, and land use and transportation.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PLAN 890. Special Topics in Planning and Urbanism. 1-3 Credits.
Reading, lectures, and discussions to provide opportunities to develop new concepts and courses in various city and regional planning topics.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PLAN 891. Special Topics in Planning and Urbanism. 3 Credits.
Reading, lectures, and discussions to provide opportunities to develop new concepts and courses in various city and regional planning topics.
Grading status: Letter grade.

PLAN 896. Independent Study. 1-15 Credits.
This course permits full-time graduate students enrolled in the Department of City and Regional Planning who wish to pursue independent research or an independent project to do so under the direction of a member of the department faculty.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

PLAN 911. Ph.D. Research Seminar. 1-15 Credits.
Original research, fieldwork, readings, or discussion of selected planning issues under guidance of a member of the faculty.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PLAN 992. Master's (Non-Thesis). 3 Credits.
The master's project is original work, involving a substantial degree of independent research and/or analysis. May be a research paper, critical essay, development and evaluation of a program, project, or plan.
Repeat rules: May be repeated for credit.

PLAN 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF CLASSICS (GRAD)

Contact Information

Department of Classics
Visit Program Website (http://www.classics.unc.edu)

James B. Rives, Chair
jbrives@email.unc.edu

Emily Baragwanath, Director of Graduate Studies
ebaragwanath@unc.edu

Graduate work in the Department of Classics is primarily designed to meet the needs of students who intend by intensive study and research to specialize in the classics. The M.A. prepares especially for teaching at the secondary level; the Ph.D., for research and teaching at the university level.

The University is a contributing member of the American Academy in Rome, the American School of Classical Studies at Athens, the American Schools of Oriental Research, and the American Research Institute in Turkey. There are thus numerous opportunities for study and archaeological activity abroad.

The degree of master of arts is offered with a concentration in Greek and Latin or classical archaeology. The degree of doctor of philosophy is offered with a concentration in Greek and Latin, classics with historical emphasis, classical archaeology, or classical and medieval Latin. A minor in related departments may be permitted on application. Students may broaden their program by taking supporting work in related languages or literatures or in art, history, linguistics, philosophy, religious studies, or women's and gender studies.

A detailed description of the requirements for the specific graduate degree programs in the Department of Classics may be found on the department's Web site (http://classics.unc.edu/graduate-2).

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Robert Babcock (1), Medieval Latin
Donald Haggis (40), Greek Archaeology, Aegean Prehistory, Bronze Age and Early Iron Age Crete
Sharon L. James (5), Latin Poetry, Women in Antiquity
James J. O'Hara (2), Latin Poetry, Latin and Greek Literature
James B. Rives (11), Ancient Religion, Roman Literature and Culture
Patricia Rosenmeyer (26), Greek Literature

Associate Professors

Emily Baragwanath (3), Greek Historiography
Janet Downie (24), Greek Prose, Imperial Greek Literature and Culture

Assistant Professors

Al Duncan (4), Classics and Humanities
Jennifer Gates-Foster (7), Roman Archaeology, Ptolemaic and Roman Egypt
Suzanne Lye (35), Greek Literature
Hérica Valladares (41), Hellenistic and Roman Art

Adjunct Professors

Eric Downing, Ancient Literary Theory, Ancient/Modern Relations
Bart Ehrman, Hellenistic Religion, New Testament
Mariska Leunissen, Ancient Greek Philosophy
Pamela Lothspeich, Sanskrit Epic
Jodi Magness, Classical and Near Eastern Archaeology
Hugo Méndez, Early Christianity
Fred Naiden, Greek History
Zlatko Pleše, Ancient Mediterranean Religions
C.D.C. Reeve, Ancient Philosophy, Moral Psychology, History of Philosophy
Richard J.A. Talbert, Roman History
Jessica Wolfe, Classical Reception in Renaissance Literature

Professors Emeriti

Carolyn L. Connor
George W. Houston
Jerzy Linderski
Sara Mack
William H. Race
Kenneth J. Reckford
Peter M. Smith
Philip A. Stadter
William C. West III
Cecil W. Wooten

Classical Archaeology - CLAR

Advanced Undergraduate and Graduate-level Courses

CLAR 411. Archaeological Field Methods. 3 Credits.
Systematic introduction to archaeological field methods, especially survey and excavation techniques.
Grading status: Letter grade.

CLAR 460. Greek Painting. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. A survey of the development of Greek art from geometric to Hellenistic painting through a study of Greek vases, mosaics, and mural paintings.
Grading status: Letter grade
Same as: ARTH 460.

CLAR 461. Archaic Greek Sculpture. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. A focused study of sculpture during the Archaic period in Greece.
Grading status: Letter grade
Same as: ARTH 461.

CLAR 462. Classical Greek Sculpture. 3 Credits.
Permission of the instructor. A focused study of Greek sculpture during the classical period.
Grading status: Letter grade
Same as: ARTH 462.

CLAR 463. Hellenistic Greek Sculpture. 3 Credits.
Required preparation, any intermediate art history course or permission of the instructor. A focused study of Greek sculpture in the Hellenistic period.
Grading status: Letter grade
Same as: ARTH 463.

CLAR 464. Greek Architecture. 3 Credits.
A survey of Greek architectural development from the Dark Ages through the fourth century BCE. Special topics include the beginnings of monumental architecture, the development of the orders, and interpretations of individual architects in terms of style and proportions.
Requisites: Prerequisite, CLAR 244; permission of the instructor for students lacking the prerequisite.
Gen Ed: HS, NA, WB.
Grading status: Letter grade
Same as: ARTH 464.

CLAR 465. Architecture of Etruria and Rome. 3 Credits.
The development of architecture in the Roman world from the ninth century BCE through the fourth century CE. The course focuses on the development of urbanism and the function, significance, and evolution of the main building types and their geographic distribution.
Requisites: Prerequisite, CLAR 245, CLAR 247, or CLAR/ARTH 263; permission of the instructor for students lacking the prerequisite.
Gen Ed: VP, NA, WB.
Grading status: Letter grade
Same as: ARTH 465.

CLAR 474. Roman Sculpture. 3 Credits.
Survey of Roman sculpture (200 BCE-300 CE), including portraiture, state reliefs, funerary monuments, and idealizing sculpture, with emphasis on style, iconography, and historical development of sculpture in its sociocultural, political, and religious contexts.
Requisites: Prerequisite, CLAR 245, CLAR 247 or CLAR/ARTH 263; permission of the instructor for students lacking the prerequisite.
Gen Ed: VP, WB.
Grading status: Letter grade
Same as: ARTH 474.

CLAR 475. Frontiers and Provinces of the Roman Empire. 3 Credits.
A survey of the material remains of the frontiers and provinces of the Roman Empire and the variety of responses to Roman imperialism. Issues of language, gender, ethnicity, globalization, and power will be considered.
Requisites: Prerequisite, any CLAR course at the 200-level or higher (preferably CLAR 245 or CLAR 247); permission of the instructor for students lacking the prerequisite.
Gen Ed: HS, WB.
Grading status: Letter grade.

CLAR 476. Roman Painting. 3 Credits.
Surveys Roman painting from 200 BCE to 300 CE, with emphasis on style, iconography, historical development of painting in its sociocultural, political, and religious contexts. Treats current debates in scholarship.
Requisites: Prerequisite, any CLAR or ARTH course at the 200-level or higher (preferably CLAR 245, CLAR 247, or CLAR/ARTH 263); permission of the instructor for students lacking the prerequisite.
Gen Ed: VP, WB.
Grading status: Letter grade
Same as: ARTH 476.

CLAR 480. Egypt after the Pharaohs. 3 Credits.
This course explores the archaeological and historical evidence for life in Egypt between 332 BCE and 324 CE, when the traditions of Pharaonic Egypt came together with the customs and culture of Greek and Roman conquerors to create a society incorporating the traditions of native Egyptian and Mediterranean peoples.
Requisites: Prerequisite, any CLAR course at the 200-level of higher (preferably CLAR 242 or CLAR 247); permission of the instructor for students lacking the prerequisite.
Gen Ed: BN, WB.
Grading status: Letter grade.

CLAR 482. Art and Archaeology of Achaemenid Persia. 3 Credits.
This course will examine the history and material culture of the ancient state known as the Achaemenid Persian Empire through ancient texts and archaeological sources. Beginning in the sixth century BCE, this ancient superpower ruled a vast and culturally diverse empire that stretched from Northern Libya to central Asia. Through an examination of key sites, objects, and texts we will explore the history and diversity of this multicultural empire.
Gen Ed: VP, BN.
Grading status: Letter grade
Same as: ARTH 482.

CLAR 488. The Archaeology of the Near East in the Iron Age. 3 Credits.
A survey of the principal sites, monuments, and art of the Iron Age Near East, ca. 1200 to 500 BCE.
Requisites: Prerequisite, CLAR 241; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

CLAR 489. The Archaeology of Anatolia in the Bronze and Iron Ages. 3 Credits.
A survey of Anatolian archaeology from the third millennium through the sixth century BCE.
Requisites: Prerequisite, CLAR 241 or permission of the instructor.
Gen Ed: HS, BN, WB.
Grading status: Letter grade.

CLAR 491. The Archaeology of Early Greece (1200-500 BCE). 3 Credits.
This course surveys the development of Greek material culture from 1200 to 500 BCE, exploring the origins of Greek art, architecture, cities, and sanctuaries in the Aegean and eastern Mediterranean.
Requisites: Prerequisite, any CLAR course at the 200-level or higher (preferably CLAR 243 or CLAR 244); permission of the instructor for students lacking the prerequisite.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

CLAR 512. Ancient Synagogues. 3 Credits.
This is a course on ancient synagogues in Palestine and the Diaspora from the Second Temple period to the seventh century CE.
Requisites: Prerequisite, RELI 110; permission of the instructor for students lacking the prerequisite.
Gen Ed: VP, BN, WB.
Grading status: Letter grade
Same as: RELI 512, JWST 512.

CLAR 561. Mosaics: The Art of Mosaic in Greece, Rome, and Byzantium. 3 Credits.
Required preparation, any course in classics, art history, or religious studies. Traces the development of mosaic technique from Greek antiquity through the Byzantine Middle Ages as revealed by archaeological investigations and closely analyzes how this dynamic medium conveyed meaning.
Gen Ed: VP, BN.
Grading status: Letter grade.

CLAR 650. Field School in Classical Archaeology. 6 Credits.
This course is an introduction to archaeological field methods and excavation techniques, through participation in archaeological excavation.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

Graduate-level Courses

CLAR 781. The Archaeology of the Bronze Age Aegean. 3 Credits.
Study of the material culture of the Aegean Neolithic and Bronze Age, focusing on the origins and development of Minoan and Mycenaean culture groups and palatial societies.
Grading status: Letter grade.

CLAR 782. The Archaeology of Early Iron Age Greece and the Aegean. 3 Credits.
The study of the material culture of the Early Iron Age Aegean from the collapse of the Bronze Age palaces to the earliest Greek city states (ca. 1200-700 B.C.).
Grading status: Letter grade.

CLAR 790. Field Practicum in Archaeology. 3 Credits.
Seminar in archaeological excavation techniques to be conducted in the field. Previous excavation experience is expected.
Grading status: Letter grade.

CLAR 794. Greek Topography. 3 Credits.
Study of chief archaeological sites of Greece and of existing buildings and monuments. Attention to the problems of excavation and the role of the sites in Greek history.
Grading status: Letter grade
Same as: ARTH 794.

CLAR 796. The Archaeology of the Roman Province. 3 Credits.
This course explores the interaction between Rome and the provinces between the third century BCE and the third century CE, focusing on issues of globalization, resistance, gender, and multiculturalism.
Grading status: Letter grade.

CLAR 798. Roman Topography. 3 Credits.

CLAR 812. Diaspora Judaism. 3 Credits.
Permission of the instructor for undergraduates. Seminar examines the evidence for the ancient Jewish communities of Egypt, Rome, Asia Minor, and Mesopotamia.
Grading status: Letter grade
Same as: RELI 812.

CLAR 841. Special Reading in Archaeology. 3 Credits.
With permission of the department, this course may be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

CLAR 910. Seminar in Archaeology. 3 Credits.
Topics vary from year to year.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

CLAR 960. Seminar in Ancient Art. 3 Credits.

CLAR 993. Master's Research and Thesis. 3 Credits.

CLAR 994. Doctoral Research and Dissertation. 3 Credits.

Classics in English/Classical Civilization - CLAS

Courses Not Requiring a Reading Knowledge of Greek and Latin

The following courses in classical literature and civilization are especially designed to supply the necessary foundation for those who, without a reading knowledge of the ancient languages, wish a broader culture or plan to specialize in modern literature, history, art, etc. When approved these courses may count as part of the major requirements in other departments. The courses may also be taken to satisfy the requirements of a minor in literature. See also English and Comparative Literature.

Advanced Undergraduate and Graduate-level Courses

CLAS 409. Historical Literature Greek and Roman. 3 Credits.
The study in English translation of selections from Herodotus, Thucydides, Livy, Tacitus, and others, with consideration of their literary qualities and their readability as historians. Honors version available
Gen Ed: LA, NA, WB.
Grading status: Letter grade.

CLAS 409H. Historical Literature Greek and Roman. 3 Credits.
The study in English translation of selections from Herodotus, Thucydides, Livy, Tacitus, and others, with consideration of their literary qualities and their readability as historians.
Gen Ed: LA, NA, WB.
Grading status: Letter grade.

CLAS 415. Roman Law. 3 Credits.
This course combines a survey of the main areas of Roman law in their social and historical context with the close study of primary texts illustrating Roman law in practice, especially case studies from the writings of Roman jurists; particular attention is given to the logic and application of ancient Roman legal thought. Honors version available
Gen Ed: PH, WB.
Grading status: Letter grade.

CLAS 415H. Roman Law. 3 Credits.
This course combines a survey of the main areas of Roman law in their social and historical context with the close study of primary texts illustrating Roman law in practice, especially case studies from the writings of Roman jurists; particular attention is given to the logic and application of ancient Roman legal thought.
Gen Ed: PH, WB.
Grading status: Letter grade.

CLAS 511. Grammar as a Guide to Effective Writing. 1 Credit.
A systematic review of English grammar for students of Latin and Greek, combined with practical exercises in prose style and effective writing.
Requisites: Prerequisite, GREK 204 or LATN 204.
Grading status: Letter grade.

CLAS 691H. Honors Course. 3 Credits.
Honors course for departmental majors in classical archaeology, classical civilization, Greek, and Latin.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

CLAS 692H. Honors Course. 3 Credits.
Honors course for departmental majors in classical archaeology, classical civilization, Greek, and Latin.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

CLAS 747. Approaches to Women in Antiquity. 3 Credits.
Intensive interdisciplinary introduction to women in antiquity, using literary, historical, and visual materials. Open to senior classics majors by permission of the instructor.
Grading status: Letter grade.

Greek - GREK

Advanced Undergraduate and Graduate-level Courses

GREK 409. Greek New Testament. 3 Credits.
Prerequisite, GREK 222; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: RELI 409.

Graduate-level Courses

NOTE: One or two Greek courses numbered in the 700s are offered each semester.

GREK 710. Greek Prose Composition. 3 Credits.
Review of Attic grammar and idiom, exercises in composition, introduction to stylistics.
Grading status: Letter grade.

GREK 711. Readings in Early Greek Poetry. 3 Credits.
Selections from Homer, Hesiod, and/or the lyric and elegiac poets of the Archaic period, focusing on works on the M.A. and Ph.D. reading lists.
Grading status: Letter grade.

GREK 712. Readings in Greek Literature of the Fifth Century. 3 Credits.
Selections from tragedy, Old Comedy, and/or historiography, focusing on works on the M.A. and Ph.D. reading lists.
Grading status: Letter grade.

GREK 713. Readings in Greek Literature of the Fourth Century. 3 Credits.
Selections from philosophy, oratory, historiography, and/or New Comedy, focusing on works on the M.A. and Ph.D. reading lists.
Grading status: Letter grade.

GREK 722. Greek Epigraphy. 3 Credits.

GREK 744. An Introduction To Greek Law. 3 Credits.
This class has three goals: familiarizing students with Greek language, introducing them to concepts of Greek law by reading secondary literature, and directing them to current debates in the field.
Grading status: Letter grade.

GREK 750. Homer. 3 Credits.

GREK 753. Greek Lyric Poetry. 3 Credits.

GREK 755. Greek Tragedy. 3 Credits.

GREK 757. Sophocles. 3 Credits.

GREK 759. Greek Comedy. 3 Credits.

GREK 761. Greek Philosophical Literature. 3 Credits.

GREK 763. Greek Historical Literature. 3 Credits.

GREK 765. Thucydides. 3 Credits.

GREK 767. Greek Rhetoric and Oratory. 3 Credits.

GREK 769. Demosthenes. 3 Credits.

GREK 771. Hellenistic Poetry. 3 Credits.

GREK 775. Later Greek Prose. 3 Credits.

GREK 841. Special Reading. 3 Credits.
With permission of the department, this course may be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

GREK 901. Greek Seminiars. 3 Credits.
Topics vary from year to year.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

GREK 993. Master's Research and Thesis. 3 Credits.
Fall and spring. Staff.
Repeat rules: May be repeated for credit.

GREK 994. Doctoral Research and Dissertation. 3 Credits.
Fall and spring. Staff.
Repeat rules: May be repeated for credit.

Latin - LATN

Advanced Undergraduate and Graduate-level Courses

LATN 601. Accelerated Elementary Latin. 3 Credits.
An intensive introduction to Latin grammar and syntax, equivalent to LATN 101 and 102. Students may not receive credit for the following course pairs: LATN 101 and 601; LATN 102 and 601.
Grading status: Letter grade.

LATN 602. Accelerated Intermediate Latin. 3 Credits.
An intensive review of Latin grammar, along with vocabulary building and the development of reading and translation skills, equivalent to LATN 203 and 204. Students may not receive credit for the following course pairs: LATN 203 and 602; LATN 204 and 602.
Grading status: Letter grade.

Graduate-level Courses

NOTE: One or two Latin courses numbered in the 700s are offered each semester.

LATN 710. Introductory Latin Composition. 3 Credits.
Review of Latin grammar and idiom, exercises in composition, introduction to stylistics.
Grading status: Letter grade.

LATN 711. Readings in Latin Literature of the Republic. 3 Credits.
Selections from Roman comedy, Lucretius, Catullus, Cicero, Caesar, and/or Sallust, focusing on works on the M.A. and Ph.D. reading lists.
Grading status: Letter grade.

LATN 712. Readings in Latin Literature of the Augustan Age. 3 Credits.
Selections from Vergil, Horace, the elegiac poets, Ovid, and/or Livy, focusing on works on the M.A. and Ph.D. reading lists.
Grading status: Letter grade.

LATN 713. Readings in Latin Literature of the Empire. 3 Credits.
Selections from writers from the Neronian period through Apuleius, focusing on works on the M.A. and Ph.D. reading lists.
Grading status: Letter grade.

LATN 714. Readings in Latin Literature of Later Antiquity. 3 Credits.
Selections from writers from the early 3rd to the early 5th century, including Tertullian, the Passio Perpetuae, Augustine's Confessions, the Scriptores Historiae Augustae, and Ammianus Marcellinus, focusing on works on the M.A. and Ph.D. reading lists.
Grading status: Letter grade.

LATN 722. Latin Epigraphy. 3 Credits.

LATN 723. Latin Paleography. 3 Credits.

LATN 724. Latin Textual Criticism. 3 Credits.
Introduction to textual criticism of Latin texts. Addresses transmission, principles of editing, constructing and interpreting an apparatus criticus. Practical editorial experience working from original manuscripts, microfilms, and digital reproductions.
Grading status: Letter grade.

LATN 725. Latin Composition and Prose Styles. 3 Credits.

LATN 726. History of Latin. 3 Credits.

LATN 730. Readings in Medieval Latin Literature. 3 Credits.
Survey of medieval Latin literature from its beginnings through the high Middle Ages.
Grading status: Letter grade.

LATN 753. Fragments of Early Latin Poetry. 3 Credits.

LATN 762. Roman Historical Literature. 3 Credits.
Study of Sallust, Caesar, Suetonius, or the minor historians of the empire.
Grading status: Letter grade.

LATN 764. Roman Dramatic Literature. 3 Credits.
Study of the comedies of Plautus and Terence or the tragedies of Seneca.
Grading status: Letter grade.

LATN 765. Roman Lyric and Elegiac Poetry. 3 Credits.
Study of the forms of lyric and elegiac poetry with special attention to Catullus, Horace, Tibullus, or Propertius.
Grading status: Letter grade.

LATN 766. Roman Satire. 3 Credits.
Study of the development of satiric forms with special attention to Horace or Juvenal.
Grading status: Letter grade.

LATN 767. Ovid and Literary Theory. 3 Credits.
Introduction to literary theory through a study of Ovid and scholarly approaches to his poetry.
Grading status: Letter grade.

LATN 768. Horace and Catallus. 3 Credits.

LATN 770. Topics in Medieval Latin Literature. 3 Credits.
Reading in selected medieval Latin prose and verse authors.
Grading status: Letter grade.

LATN 771. Cicero: Political Career. 3 Credits.

LATN 772. Cicero: Literary Career. 3 Credits.

LATN 773. Lucretius. 3 Credits.

LATN 774. Virgil. 3 Credits.

LATN 775. Livy. 3 Credits.

LATN 776. Ovid. 3 Credits.

LATN 780. The Roman Novel. 3 Credits.
Selections from Petronius and/or Apuleius and related texts.
Grading status: Letter grade.

LATN 784. Tacitus. 3 Credits.

LATN 841. Special Reading. 3 Credits.
With permission of the department, this course may be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

LATN 901. Latin Seminars. 3 Credits.
Topics vary from year to year.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

LATN 993. Master's Research and Thesis. 3 Credits.

LATN 994. Doctoral Research and Dissertation. 3 Credits.

DIVISION OF CLINICAL REHABILITATION AND MENTAL HEALTH COUNSELING (GRAD)

Contact Information

Division of Clinical Rehabilitation and Mental Health Counseling
Visit Program Website (http://www.alliedhealth.unc.edu/rcp)

Eileen J. Burker, Director

The Division of Clinical Rehabilitation and Mental Health Counseling (CRMH) of the Department of Allied Health Sciences offers a unique and challenging 60+ credit master of science degree in clinical rehabilitation and mental health counseling with concentrations in working with persons with developmental and psychiatric disabilities.

The graduate courses offered in clinical rehabilitation and mental health counseling present and discuss theoretical constructs and their application to clinical practice; study the biopsychosocial complexity of disability within rehabilitation contexts; examine professional role and identity within ethical guidelines of practice; stimulate critical, analytical, and creative thought; and prepare students for professional rehabilitation and mental health counseling practice, including specialty settings for people with developmental and/or psychiatric disabilities.

Mission

The mission of the Division of Clinical Rehabilitation and Mental Health Counseling is to serve the people of North Carolina by using evidence-based knowledge to give rehabilitation and mental health counselors the expertise to provide services to our citizens with disabilities with a special focus on those with developmental disabilities and/or psychiatric disabilities.

We believe in the dignity and worth of citizens with disabilities and their right to live self-determined lives in inclusive communities of their choice. The division educates counselors who then use their skills: (i) to help citizens with disabilities live productive and independent lives; (ii) to provide access to and manage personalized services that support the unique needs and preferences of each citizen with a disability and their respective families and communities; and (iii) to forge new models of research-informed community practice.

Our counselors are taught to assess and focus on the whole person: psychological, vocational, spiritual, and physical needs, and family, social, vocational, and community relationships. Division-educated counselors must possess the knowledge, courage, vision, critical thinking abilities, and commitment to independent learning and scholarship required to comprehensively address these needs.

In carrying out this mission, the faculty of the division has the obligation: (i) to discover, preserve, synthesize, and transmit knowledge; (ii) to be models of professional leadership; and (iii) to create a culture of educational excellence that nurtures students' intellectual and ethical development. Students have the responsibility to fully engage in an educational process of research, free inquiry, and personal responsibility and to become practitioners, scholars, researchers, and leaders in the profession of clinical rehabilitation counseling and mental health counseling.

The University of North Carolina at Chapel Hill is recognized, nationally and internationally, as a leading center of scholarship, research and creative work with a mission to serve the people of the state and nation. The mission of our division is to contribute actively and substantively to this tradition.

Objectives

Graduates of the program will:

1. Practice effectively within a community model using current best practices;
2. Assess the client's overall rehabilitation needs and preferences and work together with the client to develop and implement appropriate counseling services and support plans;
3. Have specific knowledge and skills to address the counseling and case management needs of individuals with disabilities with emphasis on the needs of persons with psychiatric and developmental disabilities;
4. Work collaboratively with interdisciplinary teams, family members, community members and decision and policy makers;
5. Engage in a process of lifelong learning, collaboration and collegiality;
6. Assume leadership roles in practice and the profession with the necessary leadership, business and management and public policy skills;
7. Empower clients as self advocates.

Students must successfully complete 62 semester hours of required coursework; submit and defend an approved master's thesis, paper, or project; and complete an approved practicum and internship (within the chosen specialization).

Requirements for Admission

- A bachelor's degree from an accredited college or university
- A grade point average of B (3.0 on a 4.0 scale) or better in the area of the major
- Submission of Graduate Record Examination (GRE) scores combined of 1000 or greater (or two areas of quantitative, verbal, or writing scores at the 50th percentile)
- Three letters of recommendation
- Completion of the application supplement for Clinical Rehabilitation and Mental Health Counseling within The Graduate School application
- Program admission questions
- Personal statement

Professor

Eileen J. Burker, Ph.D., C.R.C., Behavioral Medicine/Health Psychology; Religiosity, Spirituality, and Quality of Life Associated with Heart and Lung Transplantation; Psychological Aspects of Cardiac and Pulmonary Rehabilitation and Left Ventricular Device (LVAD)surgery;Vocational Functioning in Individuals with Chronic Medical Conditions

Associate Professors

Eniko Rak, Ph.D., C.R.C. Health Literacy; Self-Efficacy and Health Management Behaviors and Their Impact on Employment in Individuals

with Chronic Illness and Disability; Professional Identity Development in Graduate Students

Assistant Professors

Dara Chan, Sc.D., C.R.C., Community Integration and Resource Use, Measures of Environmental Accessibility, Disability and Homelessness, Geographic Information Systems (GIS), Spatial Analysis
Blaise Morrison, Ph.D., C.R.C, P.C., Caregiver Quality of Life issues;Adjustment to Disability,Vocational Rehabilitation.

Clinical Assistant Professor

Judy Schmidt, Ed.D., C.R.C., L.P.C.A., Psychiatric Disability, Youth Mental Health and Leadership

Adjunct Faculty

W. Leigh Atherton, Ph.D., Substance Abuse, Dual Diagnosis and Motivational Interviewing
Michael P. Griffin, Ph.D., Tests and Measurements, Assessment
Shaina Gulin, Ph.D., Psychosocial Aspects of Transplant
Amy Johnson, Ph.D., Multicultural Psychology, Anxiety and Depressive Disorders, Women's issues, Couples Counseling, Clinical Supervision and Training
Terra L. Rose, Psy.D., Psychiatric Disabilities, Severe and Persistent Mental Illness, Dialectical Behavior Therapy, Clinical Supervision
Katie Tompkins, **M.S., C.R.C., L.P.C.**, Co-occurring Intellectual/ Developmental Disabilities and Psychiatric Disabilities, Autism Spectrum Disorder, Trauma-Focused Cognitive Behavioral Therapy
Tamira White, M.S., C.R.C., L.P.C.A., Transition from High School to Adulthood for Youth with Autism Spectrum Disorder, Family Support During Transition.

CRMH

Graduate-level Courses

CRMH 700. Foundations of Clinical Rehabilitation and Mental Health Counseling. 3 Credits.
This course will cover topics germane to the history and philosophy of rehabilitation. Students will obtain an overview of the field, its consumers, and methods of service delivery. .
Grading status: Letter grade.

CRMH 702. Theories of Counseling Applied to Rehabilitation. 3 Credits.
An introduction to the traditional theories of individual and family counseling. Emphasis on application of theories to persons with disabilities, ethics, and multicultural awareness.
Grading status: Letter grade.

CRMH 704. Medical Aspects of Rehabilitation. 3 Credits.
Functional, psychological, vocational, familial, social, and sexual aspects of medical disabilities. Includes the human body system and medical terminology. Focus on assistive technology and functional capacity.
Grading status: Letter grade.

CRMH 706. Tests and Measurement in Clinical Rehabilitation & Mental Health Counseling. 3 Credits.
This course is an overview of the selection, administration, and interpretation of major assessment tools. Emphasis is on persons with mental illness or developmental disabilities.
Grading status: Letter grade.

CRMH 708. Career Development and Employment: Counseling Persons with Disabilities. 3 Credits.
This course will cover career development and counseling with emphasis on community integration in vocational and leisure pursuits of persons with disabilities, particularly those with mental illness and developmental disabilities.
Grading status: Letter grade.

CRMH 710. A Multicultural Perspective of Developmental Counseling through the Lifespan. 3 Credits.
A multicultural perspective of developmental theories and counseling through the lifespan will be covered with overall themes of positive development, resiliency, and healthy life transitions of persons with disabilities.
Grading status: Letter grade.

CRMH 712. Fundamentals of Clinical Rehabilitation & Mental Health Counseling Diagnosis & Practice with People. 3 Credits.
An introduction to diagnosing clients with mental illness and developmental disabilities. Focus is on best practice treatment and the vocational, social, and familial implications of living with a DSM disorder.
Requisites: Prerequisites, CRMH 700 and 702.
Grading status: Letter grade.

CRMH 714. Principles of Group Counseling in Clinical Rehabilitation & Mental Health Counseling. 3 Credits.
Strategies and techniques in developing and implementing groups in counseling. Attention to group counseling with persons with disabilities, specifically those with mental illness and developmental disabilities.
Grading status: Letter grade.

CRMH 716. Case Management, Rehabilitation Services, and Resources. 3 Credits.
Emphasis on leadership in all aspects of person-centered service coordination to include transdisciplinary and multi-agency effectiveness, knowledge of community organization and resources, service and support options.
Grading status: Letter grade.

CRMH 718. Co-Occurring Disorders in Clinical Rehabilitation & Mental Health Counseling. 3 Credits.
This course covers counseling with those who have co-occuring psychiatric and developmental disorders with substance abuse.
Grading status: Letter grade.

CRMH 800. Clinical Rehabilitation & Mental Health Counseling Research & Program Evaluations. 3 Credits.
Research methods, evidence-based practice, and ethical, legal, and cultural issues related to research and evaluation. Covers basic statistics, library research for rehabilitation-related information, proposal development, and grant writing.
Requisites: Prerequisites, CRMH 700 and 702.
Grading status: Letter grade.

CRMH 802. Clinical Rehabilitation & Mental Health Counseling Research & Program Evaluations. 5 Credits.
Required preparation, all rehabilitation counseling and psychology first-year didactic courses. Direct experience with clients/patients in varied service delivery settings.
Grading status: Letter grade.

CRMH 805. Evidence-Based Practices in Psychiatric Rehabilitation. 3 Credits.
Introduces the range of evidence-based practice and new effective models for treating individuals with severe and persistent mental illness demonstrated through levels of evidence empirically.
Requisites: Prerequisite, CRMH 818.
Grading status: Letter grade.

CRMH 806. Applied Counseling Skills in Clinical Rehabilitation & Mental Health Counseling. 5 Credits.
Designed to teach foundational counseling skills that will enable students to begin counseling. Focus on counseling individuals with mental illness and developmental disabilities. Includes ethics and multicultural awareness.
Grading status: Letter grade.

CRMH 810. Internship in Clinical Rehabilitation & Mental Health Counseling: Sections 1 and 2. 10 Credits.
Internship is a 640 hour (40 hours/week,16 weeks) clinical experience designed to provide students with opportunities to apply theoretical and clinical skills in a rehabilitation setting.
Grading status: Letter grade.

CRMH 814. Intro to Clinical Rehab & Mental Health Counseling with People with Developmental Disabilities. 3 Credits.
Historical perspective, description, diagnoses, classification, etiology, patterns of functioning, current best practices with focus on RCP service delivery and community support; day-in-the-life component included.
Grading status: Letter grade.

CRMH 816. Evidence-Based Counseling Practices with People with Developmental Disabilities. 3 Credits.
Prepares students for counseling practice with persons with developmental disabilities; focuses on achievement of person-centered, independent community life.
Grading status: Letter grade.

CRMH 818. Evidence-Based Counseling Practices with People with Psychiatric Disabilities. 3 Credits.
Prepares students for RCP practice with persons with psychiatric conditions; introduces the range of evidence-based practice and effective models for treatment of this population.
Grading status: Letter grade.

CRMH 822. Marriage, Couple & Family Counseling in Clinical Rehabilitation & Mental Health Counseling Practice. 3 Credits.
Prepares students for clinical rehabilitation and mental health counseling with families of persons with psychiatric and developmental disabilities. Family and couples counseling theory, research and practice will be covered.
Requisites: Prerequisite, CRMH 702.
Grading status: Letter grade.

CRMH 890. Special Topics in Clinical Rehabilitation & Mental Health Counseling. 1-3 Credits.
Faculty-mentored independent study to pursue specific interests and topics.
Grading status: Letter grade.

CRMH 992. Master's (Non-Thesis). 3 Credits.
Individual work by a student (supervised by faculty) to explore an area of interest in a research paper, program development, or a professional project.
Repeat rules: May be repeated for credit.

CRMH 993. Master's Research and Thesis. 3 Credits.
Individual research supervised by a faculty member in a special field of study.
Repeat rules: May be repeated for credit.

DEPARTMENT OF COMMUNICATION (GRAD)

Contact Information

Department of Communication
Visit Program Website (http://comm.unc.edu)

Patricia Parker, Chair

Ph.D in Communication

The Ph.D. at UNC is an inquiry-based degree, offering students the opportunity to build unique programs of study around their respective research interests. The program requires the student to define a program of study organized by an evolving research question or research problem. The program ensures foundational study in subdisciplines of communication studies, including rhetoric, performance studies, media and technology studies, interpersonal and organizational communication, and cultural studies. The program encourages interdisciplinary work across these areas and across disciplines to enhance one's ability to address the research question or problem, while at the same time helping to professionalize students for various employment opportunities. The research question or problem and subordinate lines of inquiry that help to define it serve as the basis for selecting coursework, for developing integrative reading lists for the doctoral comprehensive exam, and for completing a major, original research project in the form of a doctoral dissertation. All students — whether admitted with a baccalaureate degree or a master's degree — are admitted to the doctoral program; the department does not offer a terminal M.A. degree.

Professors

V. William Balthrop, Rhetorical Theory and Criticism, Cultural Studies, Argumentation*
Carole Blair, Rhetorical Theory and Criticism, Cultural Studies, Argumentation
Cori Dauber, Rhetoric and Public Address, Military Rhetoric
Lawrence Grossberg, Cultural Studies, Popular Culture, Popular Music, Philosophy of Communication and Culture
Torin Monahan, Technology Studies, Surveillance Studies
Dennis Mumby, Organizational Communication, Critical Theory
Della Pollock, Performance Theory and Criticism, Cultural Studies, Performance and Memory*
Joyce Rudinsky, Media Studies, Electronic and Interactive Media

Associate Professors

William Brown, Media Production
Renee Alexander-Craft, Critical/Performance Ethnography, Performance of Literature, Critical Studies in Race and Gender
Sarah Dempsey, Organizational Communication, Organizing in Global Contexts
Christian O. Lundberg, Rhetoric and Public Culture, Cultural Studies, Critical Theory, Religion
Steven K. May, Organizational Communication, Cultural Studies
Michael Palm, Media Studies, History of Technologies
Patricia S. Parker, Organizational Communication and Culture, Critical Studies in Gender, Race, Organizational Leadership
Tony Perucci, Performance, Performance and Media, Performance Activism, Cultural Studies
Edward Rankus, Film Production
Kumi Silva, Gender, Race and Identity, Transnational and Postcolonial Studies
Michael S. Waltman, Interpersonal Communication, Social Cognition, Hate Studies
Eric Watts, Rhetorical Studies, African American Communication and Culture, Critical Media Studies

Assistant Professors

Julia Haslett, Media and Production, Documentary Filmmaking
Alice Marwick, Media and Technology Studies
China Medel, Latinx Studies and Media Studies
Katie Striley, Interpersonal Communication

**Denotes faculty in phased retirement*

Professors Emeriti

Robbie Cox
Paul Ferguson
Ken Hillis
Gorham Kindem
Beverly Long
Lawrence B. Rosenfeld
David Sontag
Francesca Talenti
Julia T. Wood

NOTE: Courses are offered on demand except as otherwise noted.

COMM

Advanced Undergraduate and Graduate-level Courses

COMM 411. Critical Perspectives. 3 Credits.
This course explores theories of criticism and symbolic action through readings, lecture, and practical criticism of literature, media, discourse, and other symbolic acts.
Grading status: Letter grade.

COMM 412. Critical Theory. 3 Credits.
An introduction to European modern and contemporary philosophy, from the enlightenment to contemporary postmodernism.
Gen Ed: PH, NA.
Grading status: Letter grade.

COMM 413. Freud. 3 Credits.
Examination of Freudian thought within and across historical contexts, with special attention to the centrality of gender and sexuality in the operations of the "human organism.
Grading status: Letter grade.

COMM 422. Family Communication. 3 Credits.
Growth in technologies, more frequent travel, and movements of products and people across the borders of nation states change concepts of family and community. Foregrounded by these realities, this course combines theories of family and communication with documentation of lived experience to interrogate family communication patterns in contemporary culture. Honors version available
Requisites: Prerequisite, COMM 120.
Gen Ed: GL, US.
Grading status: Letter grade.

COMM 422H. Family Communication. 3 Credits.
Growth in technologies, more frequent travel, and movements of products and people across the borders of nation states change concepts of family and community. Foregrounded by these realities, this course combines theories of family and communication with documentation of lived experience to interrogate family communication patterns in contemporary culture.
Requisites: Prerequisite, COMM 120.
Gen Ed: GL, US.
Grading status: Letter grade.

COMM 423. Critical Perspectives on Work, Labor, and Professional Life. 3 Credits.
This upper level seminar develops a critical perspective on work, labor, and professional life within the global context. Throughout, we will engage in moral and philosophical debates about the status of labor and the meanings of work in our daily lives.
Grading status: Letter grade.

COMM 430. History of American Screenwriting. 3 Credits.
This viewing and research-intensive course examines the history of American narrative film through the screenwriter's experience, using a decade-by-decade approach to examine the political, social, global, psychological, religious, and cultural influences on the art, process, and careers of screenwriters.
Grading status: Letter grade.

COMM 431. Advanced Audio Production. 3 Credits.
Advanced analysis and application of the principles and methods of audio production.
Requisites: Prerequisite, COMM 130 or 150; Grade of C or better in COMM 130; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMM 432. Visual Culture. 3 Credits.
Course provides an overview of theories of visual culture. We apply these theories to better understand contemporary visual media and technologies, along with the everyday media practices they support.
Requisites: Prerequisite, COMM 140; permission of the instructor for students lacking the prerequisite.
Gen Ed: CI.
Grading status: Letter grade.

COMM 433. Intermediate Screenwriting. 3 Credits.
Open only to students in the writing for the screen and stage minor. Conceiving and outlining a feature-length screenplay.
Requisites: Prerequisite, COMM 131.
Grading status: Letter grade.

COMM 435. Memory Acts. 3 Credits.
Advanced introduction to foundational work in memory and performance studies, emphasizing theory and practice of various forms of remembering. Honors version available
Grading status: Letter grade.

COMM 435H. Memory Acts. 3 Credits.
Advanced introduction to foundational work in memory and performance studies, emphasizing theory and practice of various forms of remembering.
Grading status: Letter grade.

COMM 437. United States Black Culture and Performance. 3 Credits.
Examines how the United States Black experience is constituted in and through performance across a range of cultural contexts including the antebellum South, Reconstruction, the Harlem Renaissance, the Black Aesthetic, and contemporary urban life.
Requisites: Prerequisite, COMM 160.
Gen Ed: VP, US.
Grading status: Letter grade.

COMM 450. Media and Popular Culture. 3 Credits.
Permission of the instructor for nonmajors. Examination of communication processes and cultural significance of film, television, and other electronic media.
Requisites: Prerequisite, COMM 140.
Gen Ed: PH.
Grading status: Letter grade.

COMM 452. Film Noir. 3 Credits.
Permission of the instructor for nonmajors. Course combines reading about and viewing of 1940s and 1950s films combining narrative techniques of storytelling, novels, and the stage with purely filmic uses of spectacle, light, editing, and image.
Requisites: Prerequisite, COMM 140.
Gen Ed: VP, CI, NA.
Grading status: Letter grade.

COMM 453. The History of New Media Technology in Everyday Life. 3 Credits.
The starting point for this course, chronologically and conceptually, is the emergence of popular media technology. Our purview includes transformative innovations in mediated communication, such as telephony and e-mail, alongside familiar media technologies such as televisions and computers.
Requisites: Prerequisite, COMM 140.
Grading status: Letter grade.

COMM 454. Media and Activism. 3 Credits.
A study of the electronic media as a feedback mechanism for community organization and social change. A variety of broadcast and nonbroadcast uses of the media are studied.
Grading status: Letter grade.

COMM 463. Creating the Solo Performance. 3 Credits.
This course examines processes of creating and performing solo work. Students engage a variety of performances: autobiographical, representation of the lives of other/s, and exploration of cultural or political ideas.
Requisites: Prerequisite, COMM 160, DRAM 120, or ENGL 206, 207, or 208; permission of the instructor for students lacking the prerequisite.
Gen Ed: VP.
Grading status: Letter grade.

COMM 464. Collaborative Performance. 3 Credits.
Theory and practice of collaborative performance, emphasizing image, intertextual adaptation, site-specific and installation work, avant-garde traditions, and the play of time and space. Honors version available
Gen Ed: VP.
Grading status: Letter grade.

COMM 464H. Collaborative Performance. 3 Credits.
Theory and practice of collaborative performance, emphasizing image, intertextual adaptation, site-specific and installation work, avant-garde traditions, and the play of time and space.
Gen Ed: VP.
Grading status: Letter grade.

COMM 466. Advanced Study in Performing Literature. 3 Credits.
This course engages the theory and embodiment of prose fiction, poetry, and other kinds of literary texts, including nonfiction. Students practice adaptation and script preparation, solo/group performance, and performance critique.
Requisites: Prerequisite, COMM 160.
Gen Ed: LA, EE- Performing Arts.
Grading status: Letter grade.

COMM 470. Political Communication and the Public Sphere. 3 Credits.
A course covering the relationship between communication and political processes and institutions. Topics include media coverage and portrayal of political institutions, elections, actors, and media influence on political beliefs.
Gen Ed: PH, NA.
Grading status: Letter grade.

COMM 471. Rhetorics of Public Memory. 3 Credits.
Takes up the fundamental assumptions of contemporary memory studies and the centrality of rhetoric to memory. Research focus on how constructions of the past respond to the present and future.
Grading status: Letter grade.

COMM 472. Rhetorical Criticism. 3 Credits.
Approaches to the analysis and assessment of rhetorical practice with a focus on how rhetoric reflects and shapes public culture.
Requisites: Prerequisite, COMM 170.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

COMM 490. Special Topics in Communication Studies. 3 Credits.
Permission of the instructor for nonmajors. A special topics course on a selected aspect of communication studies.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

COMM 499. The Dark Side of Interpersonal Communication. 3 Credits.
The "dark side" of communication is a metaphor describing the study of disruptive, dysfunctional, distorted, distressing, and destructive aspects of communication. This course explores humanity's darker side that allows us to reject, exclude, stigmatize, exploit, objectify, misguide, lie, and cheat. The course examines various theoretical perspectives and applies them to everyday problems in interpersonal encounters. A sample of topics discussed include: prejudice, stigma, marginalization, bullying, ostracism, resistance, manipulation, conformity, deceit, gossip, rumors, infidelity, and revenge.
Gen Ed: SS, CI, EE- Mentored Research.
Grading status: Letter grade.

COMM 500. Visual and Material Rhetoric. 3 Credits.
This course explores the use of rhetorical criticism as a way to understand how the visual and material are used for symbolic and political purposes. Examples ranging from news images to public art will be studied.
Requisites: Prerequisite, COMM 170.
Grading status: Letter grade.

COMM 521. Communication and Social Memory. 3 Credits.
Permission of the instructor for nonmajors. An investigation of psychological aspects of communication, particularly the perceptual and interpretive processes underlying the sending and receiving of messages.
Grading status: Letter grade.

COMM 523. Communication and Leadership. 3 Credits.
Permission of the instructor for nonmajors. Critical examination of alternative theories of leadership and trends in the study of leadership; focuses on the communicative dimensions of leadership.
Requisites: Prerequisite, COMM 120.
Grading status: Letter grade.

COMM 524. Gender, Communication, and Culture. 3 Credits.
Course examines the speeches and other texts that announced and embodied the goals and political strategies of multiple branches of three waves of feminist activism in the United States.
Requisites: Prerequisite, COMM 224; permission of the instructor for non-majors.
Grading status: Letter grade
Same as: WGST 524.

COMM 525. Organizational Communication. 3 Credits.
Permission of the instructor for nonmajors. Provides a critical exploration of organizational communication theory, research, and application, examining the factors involved in the functioning and analysis of complex organizations.
Requisites: Prerequisites, COMM 120 and 325.
Grading status: Letter grade.

COMM 526. Critical-Cultural Approaches to Organizational Communication. 3 Credits.
The study of organizational culture operates on a set of assumptions distinct from traditional management perspectives. This course explores the cultural perspective as an alternative approach to understanding organizational communication processes.
Requisites: Prerequisite, COMM 325; permission of the instructor for students lacking the prerequisite.
Gen Ed: SS.
Grading status: Letter grade.

COMM 527. Organizational Ethics. 3 Credits.
A critical examination of the theory, research, and practice of organizational ethics.
Requisites: Prerequisite, COMM 325.
Grading status: Letter grade.

COMM 532. Performing the Screenplay. 3 Credits.
Introduces students to approaches for creating performance from screenplays and other texts for electronic media forms, focusing on scripts as literature and the tensions between live and electronically delivered performances.
Grading status: Letter grade.

COMM 534. Aesthetic and Technical Considerations in Making Short Videos. 3 Credits.
The course examines the aesthetic and technical elements at work and play in cinematic storytelling. The student is required to complete three projects and will gain hands-on experience in narrative filmmaking.
Requisites: Prerequisite, COMM 230.
Grading status: Letter grade.

COMM 535. Introduction to Screen Adaptation. 3 Credits.
Students practice the craft of screen adaptation by conceptualizing, outlining, and writing scenes based on material from another medium (both fiction and nonfiction). Work is presented, discussed, and performed in a workshop environment.
Requisites: Prerequisite, COMM 131, 330, ENGL 130, or 132H.
Gen Ed: CI.
Grading status: Letter grade.

COMM 537. Master Screenwriting. 3 Credits.
Open only to students in the writing for the screen and stage minor. Students will write and workshop a full-length feature film screenplay. Students will learn about the film and television business through a combination of research, in-class discussions, and interactive interviews with industry insiders.
Requisites: Prerequisite, COMM 433.
Grading status: Letter grade.

COMM 545. Pornography and Culture. 3 Credits.
Examines the social, cultural, political, legal, historical, and aesthetic implications of pornography.
Grading status: Letter grade.

COMM 546. History of Film I, 1895 to 1945. 3 Credits.
Studies the development of the art of film through World War II by examining individual films and filmmakers and the emergence of national cinemas through interaction among aesthetic, social, economic, and technological factors.
Requisites: Prerequisite, COMM 140.
Grading status: Letter grade.

COMM 547. History of Film II, 1945 to Present. 3 Credits.
Study of the development of the art of film from the end of World War II to the present day by examining individual films and filmmakers and the emergence of national cinemas through interaction among aesthetic, social, economic, and technological factors.
Requisites: Prerequisite, COMM 140.
Grading status: Letter grade.

COMM 548. Humor and Culture. 3 Credits.
Permission of the instructor for nonmajors. Investigates how humor, comedy, and laughter function socially and culturally through close examination of selected United States popular media texts and the primary modern theoretical writings on these issues.
Requisites: Prerequisite, COMM 140.
Grading status: Letter grade.

COMM 549. Sexuality and Visual Culture. 3 Credits.
Examines questions about sexuality and how it has changed over time, through various media of visual communication.
Grading status: Letter grade.

COMM 550. American Independent Cinema. 3 Credits.
Intensive investigation of some particularly influential strains for United States independent narrative cinema, with a focus on sociocultural contexts and the fuzziness of the word "independent.
Requisites: Prerequisite, ARTH 159, COMM 140, or ENGL 142; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMM 551. Hitchcock and the Sign. 3 Credits.
Course gives Alfred Hitchcock's cinema careful attention while tracking longstanding debates about signification and reference from philosophy, semiotics, literary theory, narratology, and visuality into recent critical and cultural theory.
Requisites: Prerequisite, ARTH 159, COMM 140, or ENGL 142; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMM 561. Performance of Women of Color. 3 Credits.
Explores through performance contemporary poetry, fiction, nonfiction, and feminist thought by women of color in the United States. Honors version available
Requisites: Prerequisite, COMM 160.
Grading status: Letter grade
Same as: WGST 561.

COMM 561H. Performance of Women of Color. 3 Credits.
Permission of the instructor for nonmajors. Explores through performance contemporary poetry, fiction, nonfiction, and feminist thought by women of color in the United States.
Requisites: Prerequisite, COMM 160.
Grading status: Letter grade
Same as: WGST 561H.

COMM 562. Oral History and Performance. 3 Credits.
This course combines readings and field work in oral history with the study of performance as a means of interpreting and conveying oral history texts. Honors version available
Gen Ed: EE- Performing Arts.
Grading status: Letter grade
Same as: FOLK 562, HIST 562, WGST 562.

COMM 562H. Oral History and Performance. 3 Credits.
This course combines readings and field work in oral history with the study of performance as a means of interpreting and conveying oral history texts.
Gen Ed: EE- Performing Arts.
Grading status: Letter grade
Same as: FOLK 562H, HIST 562H, WGST 562H.

COMM 564. Performance and Popular Culture. 3 Credits.
Critical examination of the operation of performance as a cultural phenomenon, with an emphasis on meaning, power, and resistance in cultural events, social practices, and media spectacles.
Requisites: Prerequisite, COMM 160.
Grading status: Letter grade.

COMM 568. Adapting and Directing for the Stage. 3 Credits.
This course introduces students to practices in adapting and directing literary texts for live ensemble performance. Students will create original performance work, engage in collaborative critique, and discuss the development of aesthetic value.
Requisites: Prerequisite, COMM 160.
Grading status: Letter grade.

COMM 571. Rhetorical Theory and Practice. 3 Credits.
Investigates the theoretical definitions and uses of rhetorical interpretation and action in spoken, written, visual, material practices, discourses, and events.
Requisites: Prerequisite, COMM 170.
Grading status: Letter grade.

COMM 572. Public Policy Argument. 3 Credits.
Analyzes argument in a variety of contexts with an emphasis on public policy and exploring tensions involved in addressing both expert and public audience in the political sphere. Honors version available
Requisites: Prerequisite, COMM 170.
Grading status: Letter grade.

COMM 572H. Public Policy Argument. 3 Credits.
Analyzes argument in a variety of contexts with an emphasis on public policy and exploring tensions involved in addressing both expert and public audience in the political sphere.
Requisites: Prerequisite, COMM 170.
Grading status: Letter grade.

COMM 573. The American Experience in Rhetoric. 3 Credits.
Examines public discourse from the colonial period to the present. Discourses, critical perspectives, and historical periods studied will vary.
Requisites: Prerequisite, COMM 170.
Grading status: Letter grade.

COMM 574. War and Culture. 3 Credits.
Examines American cultural myths about war generally and specifically about the causes of war, enemies, weapons, and warriors, and the way these myths constrain foreign and defense policy, military strategy, and procurement.
Grading status: Letter grade
Same as: PWAD 574.

COMM 575. Presidential Rhetoric. 3 Credits.
The power of the presidency depends in part upon the president's ability to rally public opinion, which depends upon the president's ability to use the "bully pulpit." This course examines the hurdles presidents face and the steps presidents take to shape opinion.
Requisites: Prerequisite, COMM 170.
Grading status: Letter grade
Same as: PWAD 575.

COMM 576. Making and Manipulating "Race" in the United States. 3 Credits.
This course will examine how tropes of "race" are symbolically invented and experienced psychologically and emotionally. This course assesses how "race" reflects and shapes cultural politics.
Gen Ed: HS, US.
Grading status: Letter grade.

COMM 577. Rhetoric and Black Culture. 3 Credits.
This course will explore the complex ways in which Black aesthetic forms and creative expression function as public discourse.
Gen Ed: SS, US.
Grading status: Letter grade.

COMM 596. Advanced Independent Study/Directed Reading. 1-3 Credits.
Permission of the department. Majors only. 3.0 cumulative grade point average and 3.5 communication studies grade point average required. For the communication studies major who wishes to pursue an advanced independent research project under the supervision of a selected instructor. Intensive individual research on a problem designed by instructor and student in conference.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

COMM 610. Reading Quantitative Research in Communication Studies. 3 Credits.
Permission of the instructor for nonmajors. Review of the basics of quantitative research (e.g., scientific method, modes of data collection, instrument development, data analysis techniques) with the goal of gaining skill in reading published articles in communication studies journals.
Grading status: Letter grade.

COMM 620. Theories of Interpersonal Communication. 3 Credits.
Permission of the instructor for nonmajors. Course focuses on how communication is used to build and sustain interpersonal relationships. Forms and functions of communication are examined as a means of testing and defining relationships.
Requisites: Prerequisite, COMM 120.
Grading status: Letter grade.

COMM 624. Hate Speech. 3 Credits.
The primary focus of hate speech is on the ways that interactants manipulate hatred to accomplish a variety of social and personal goals. The pursuit of this focus will allow the student to appreciate the operation of hatred in a variety of contexts. Often taught as a service-learning course.
Grading status: Letter grade.

COMM 625. Communication and Nonprofits in the Global Context. 3 Credits.
Introduces students to the opportunities, challenges, and rewards of participation within the nonprofit/NGO sector. The course also equips students with the skills needed to design and conduct engaged scholarship.
Gen Ed: EE- Service Learning, EE- Mentored Research, GL.
Grading status: Letter grade.

COMM 635. Documentary Production. 3 Credits.
A workshop in the production of video and/or film nonfiction or documentary projects. The course will focus on narrative, representational, and aesthetic strategies of documentary production.
Requisites: Prerequisite, COMM 230.
Grading status: Letter grade.

COMM 636. Interactive Media. 3 Credits.
Explores interactive media through creative projects that include sound, video, and graphic elements. Technical information will serve the broader goal of understanding the aesthetics and critical issues of interactive media.
Grading status: Letter grade.

COMM 637. Social Practice and Performance Art. 3 Credits.
Students will explore "socially engaged art" practices that challenge the distinction between art and life, are fundamentally collaborative, value process over end product, and utilize action, dialogue, and participation as strategies as an intervention in public discourse.
Gen Ed: VP.
Grading status: Letter grade
Same as: ARTS 637.

COMM 638. Game Design. 3 Credits.
Permission of the instructor for nonmajors. Studio course that explores gaming critically and aesthetically. Practice in game design and production including 3-D worlds and scripting.
Requisites: Prerequisite, COMM 150.
Gen Ed: VP.
Grading status: Letter grade.

COMM 640. Game Studio. 3 Credits.
Game Studio is a project-based course in the new media track. This course is designed to provide a structured environment, instructor and peer feedback, along with technical and conceptual resources in which to complete a new media project. Students may work individually or on collaborative teams. The class focuses on idea development, design, and experimentation.
Requisites: Prerequisite, COMM 638; permission of the instructor for students lacking the prerequisite.
Gen Ed: VP.
Grading status: Letter grade.

COMM 642. Special Topics in Cultural Studies. 3 Credits.
Permission of the instructor for nonmajors. This course will explore various specific topics, theories, and methodologies in cultural studies.
Requisites: Prerequisite, COMM 350.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

COMM 644. Documentary Production: First Person Filmmaking. 3 Credits.
Students create documentaries emphasizing the filmmaker's personal perspective and experience: essay, diary, and autobiographical films, and pieces in which the filmmaker performs a role for expressive or political ends. Significant class time is devoted to work-shopping student films.
Requisites: Prerequisite, COMM 230; permission of the instructor for students lacking the prerequisite.
Gen Ed: EE- Performing Arts.
Grading status: Letter grade.

COMM 645. The Documentary Idea. 3 Credits.
Permission of the instructor for nonmajors. Historical and theoretical examination of expressions of the documentary idea in different eras and various modes including film, television, and radio.
Requisites: Prerequisite, COMM 140.
Grading status: Letter grade.

COMM 646. Introduction to the Art and Mechanics of Two-Dimensional Digital Animation. 3 Credits.
Grade of C or better required in prerequisite. Students use Adobe After-Effects and Adobe Photoshop as their primary image software to create several original animations. Assignments are given weekly, and a substantial final project is expected.
Requisites: Prerequisite, COMM 130 or 150.
Grading status: Letter grade.

COMM 647. Advanced Projects in Media Production. 3 Credits.
Recommended preparation, several production courses above COMM 230. Course provides a structured environment, instructor and peer feedback, along with production and postproduction resources for completing advanced near-to-graduation media projects. Projects can be narrative, documentary, experimental, or interactive.
Requisites: Prerequisites, COMM 230 and one of COMM 534, 635, 646, 653, or 654.
Gen Ed: VP.
Grading status: Letter grade.

COMM 650. Cultural Politics of Global Media Culture. 3 Credits.
Primary subjects will be popular culture and media technology, and guiding questions will be organized around the relationships of each to commerce and/as social change.
Requisites: Prerequisite, COMM 140; permission of the instructor for students lacking the prerequisite.
Gen Ed: CI, GL.
Grading status: Letter grade.

COMM 652. Media and Difference. 3 Credits.
Permission of the instructor for nonmajors. This course examines critical and theoretical issues concerning the representation and study of various modes of difference, such as sexuality, race, and gender, in specific media texts.
Requisites: Prerequisite, COMM 140.
Grading status: Letter grade.

COMM 653. Experimental Video. 3 Credits.
This course allows students to create video productions that play with forms that lie outside of mainstream media.
Requisites: Prerequisite, COMM 230; permission of the instructor for students lacking the prerequisite.
Gen Ed: VP.
Grading status: Letter grade.

COMM 654. Motion Graphics, Special Effects, and Compositing. 3 Credits.
In this course students learn a wide range of video post production techniques working mostly with the application After Effects.
Requisites: Prerequisite, COMM 130 or 150; Grade of C or better in COMM 130; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMM 655. Television Culture. 3 Credits.
This course introduces students to critical television studies. The course emphasizes not television or culture as separate entities but instead "Television Culture." The focus of the class is on the interrelationship between television and contemporary culture.
Requisites: Prerequisite, COMM 140.
Grading status: Letter grade.

COMM 656. Sound for Film and Video: Theory and Practice for Motion Picture Sound Design. 3 Credits.
The aim of this course is to provide students who have an interest in film and video production with an understanding of the technical, conceptual, and aesthetic implications of the motion picture soundtrack, with a special emphasis on sound-image relationships. Students who have already developed a basic proficiency in the use of video cameras, audio recorders, and editing software will be asked to cultivate an understanding of and appreciation for the expressive and artistic possibilities.
Grading status: Letter grade.

COMM 660. Advanced Projects in Performance Studies. 3 Credits.
Course provides a workshop setting for the process of creation, dramaturgy, development, analysis, and critique of graduates' and undergraduates' original performance work, focusing on the needs of each project in progress.
Requisites: Prerequisite, COMM 160.
Grading status: Letter grade.

COMM 661. Race and Ethnicity. 3 Credits.
Examines race and ethnicity in specific geopolitical contexts as discursive formations, performative identities, and lived realities. Studies disciplinary/political boundaries that are produced and maintained through acts of performance.
Requisites: Prerequisite, COMM 160.
Gen Ed: GL.
Grading status: Letter grade.

COMM 662. Black/African Diaspora Performance. 3 Credits.
Recommended preparation, COMM 160. Relying on critical race theories, colonial and postcolonial theories, and theories of performance, this course engages comparative discourses of Black/African diaspora citizenship through the literature, poetry, fiction, nonfiction, drama, and cultural performances of people of African descent, particularly in Africa, Europe, and the Americas.
Gen Ed: VP, GL.
Grading status: Letter grade.

COMM 665. Performance, Politics, and Culture. 3 Credits.
This course is a arts-based inquiry into the ways in which performance and theatricality structure contemporary politics, culture, and everyday life, as well as the ways in which artists utilize performance as mode of political engagement.
Requisites: Prerequisites, COMM 61, 62, 63, 160, 260, 262, 263, or 464.
Gen Ed: EE- Performing Arts.
Grading status: Letter grade.

COMM 666. Media in Performance. 3 Credits.
Required preparation, one performance studies course above COMM 400. Permission of the instructor for students lacking the required preparation. Project-based class where students acquire skills and critical approaches to create collaborative, professional, multimedia works.
Gen Ed: VP, EE- Performing Arts.
Grading status: Letter grade
Same as: DRAM 666.

COMM 667. Performance Activism. 3 Credits.
History and practice of performance in contemporary social movements. Practical exploration of direct action, guerilla theatre, and performance interventions.
Requisites: Prerequisite, COMM 160 or 260.
Grading status: Letter grade.

COMM 668. The Ethnographic Return to Performance and Community. 3 Credits.
This course will explore the multiple ways in which performance practiced across a broad range of social, cultural, and artistic arenas can support local community life. Honors version available
Gen Ed: EE- Field Work.
Grading status: Letter grade.

COMM 668H. The Ethnographic Return to Performance and Community. 3 Credits.
This course will explore the multiple ways in which performance practiced across a broad range of social, cultural, and artistic arenas can support local community life.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

COMM 676. Digital Media and Live Performance. 3 Credits.
Permission of the instructor for undergraduates. Intended for students from various majors, this course provides a foundation in the history, theory, and practice of developing live, technologically-intensive, multimedia performance works. The course analyzes new media masterworks, addresses techniques of interdisciplinary collaboration, and offers workshops in specific software/technology applications.
Gen Ed: VP.
Grading status: Letter grade
Same as: MUSC 676.

COMM 681. Contemporary Film Theory. 3 Credits.
Overview of poststructuralist, or "contemporary" film theory. Traces its development, its techniques, fierce critiques lobbed at it since the early 1980s, and its points of continuing importance.
Requisites: Prerequisite, ARTH 159, COMM 140, or ENGL 142; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMM 682. History of the Moving Image: Pasts, Presents, Futures. 3 Credits.
Theories of moving images and imaging technologies--from the primitive to the not-yet-existing--that focus on their multifaceted relations with various registers of time, memory, flux, and futurity.
Requisites: Prerequisite, ARTH 159, COMM 140, or ENGL 142; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMM 683. Moving-Image Avant-Gardes and Experimentalism. 3 Credits.
History and theory of international avant-garde and experimentalist movements in film, video, intermedia, multimedia, and digital formats. Content and focus may vary from semester to semester.
Requisites: Prerequisite, ARTH 159, COMM 140, or ENGL 142; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMM 690. Advanced Topics in Communication Studies. 3 Credits.
Permission of the instructor for nonmajors. A special topics course on a selected aspect of communication studies. May be repeated. Honors version available
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

COMM 690H. Advanced Topics in Communication Studies. 3 Credits.
Permission of the instructor for nonmajors. A special topics course on a selected aspect of communication studies. May be repeated.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

COMM 691H. Honors in Cultural Studies. 3 Credits.
Permission of the instructor. Required of all senior honors candidates in cultural studies. First semester of senior honors thesis.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

COMM 692H. Honors in Cultural Studies. 3 Credits.
Permission of the instructor. Required of all senior honors candidates in cultural studies. Second semester of senior honors thesis.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

COMM 693H. Honors. 3 Credits.
Permission of the department. Majors only. Cumulative grade point average must meet University standard. Individual projects designed by students and supervised by a faculty member.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

COMM 694H. Honors. 3 Credits.
Permission of the department. Majors only. Cumulative grade point average must meet University standard. Individual projects designed by students and supervised by a faculty member.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

COMM 695. Field Methods. 3 Credits.
Recommended preparation, COMM 562 or 841. A bridge course designed to offer graduate students and advanced undergraduates a practicum in fieldwork methods and performance ethnography.
Grading status: Letter grade.

Graduate-level Courses

NOTE: Courses are offered on demand except as otherwise noted.

COMM 700. Introduction to Modern Philosophy and Contemporary Theory. 3 Credits.
Considers the emergence of modern and contemporary social and cultural theory. Surveys major paradigms of modern and contemporary philosophy.
Grading status: Letter grade.

COMM 701. Introduction to Research and Theory in Communication Studies II. 3 Credits.
Admission to graduate program or permission of the department. Considers theory and philosophy in the study of communication. Surveys major paradigms of contemporary social/cultural theory (and their roots in modern philosophy) in relation to examples of communication research and practice. Second of two semesters.
Grading status: Letter grade.

COMM 702. Teaching in Communication Studies. 3 Credits.
Communication studies graduate students only. An introduction to teaching at the university level for new teaching assistants and graduate students hoping to have teaching-related responsibilities in communication studies. It is designed to encourage us to have intellectually rigorous and personally meaningful conversations about our teaching.
Grading status: Letter grade.

COMM 703. Communication and the Political. 3 Credits.
This course is designed for students to start thinking, in a historical and foundational way, about 'the political' as defined by formative thinkers from contrasting philosophical perspectives, as well as from necessarily different social positions within the field of power.
Grading status: Letter grade.

COMM 704. Communication and Discourse. 3 Credits.
This course focuses on the various ways that the problem of discourse is rendered inside and outside of Communication Studies. It examines the various modes at our disposal for thinking about discourse as a field of articulation: for example in theories of representation, mediation, and meaning making.
Grading status: Letter grade.

COMM 705. Communication and the Social. 3 Credits.
This class theorizes the Social by drawing on resources inside and outside of communication studies, thinking through the implicit and explicit investments that communication scholarship has in the concept of the social.
Grading status: Letter grade.

COMM 711. Performance as Method. 3 Credits.
Course introduces graduate students to performance practice as a way of knowing, an aesthetic expression, a form of pedagogy, a method of research, and a means of presenting findings. Students will develop and perform original work that creatively engages various research contexts.
Grading status: Letter grade.

COMM 712. The Body and Performance. 3 Credits.
This course will explore through performance the various ways the human body is 'marked' or signified in culture.
Grading status: Letter grade.

COMM 713. Primary Readings in Performance Studies. 3 Credits.
Course introduces graduate students to key texts that have informed the emergence of Performance Studies as a mode of inquiry into cultural, social, aesthetic, and political practices.
Grading status: Letter grade.

COMM 723. Research in Organizational Communication. 3 Credits.
Explores theoretical, methodological, and practical issues encountered in ethnographic, case study, and field research on communication phenomena in organizations.
Grading status: Letter grade.

COMM 724. Feminism, Science, and Communication. 3 Credits.
Critical examination of key feminist arguments about science and communication scholarship as conventionally defined; exploration of alternative goals, assumptions, and practices for research consistent with feminist theories and methodologies.
Grading status: Letter grade.

COMM 725. Interpretive Studies in Organizational Communication. 3 Credits.
Focuses on the theory and practice of interpretive organizational communication research, including organizational phenomena such as culture, metaphor, symbolism, ritual, and narrative.
Requisites: Prerequisite, COMM 525; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMM 726. Critical Studies in Organizational Communication. 3 Credits.
Focuses on the theory and practice of critical organizational communication research, including organizational phenomena such as power, discourse, and culture.
Requisites: Prerequisite, COMM 525; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMM 750. Cultural Studies. 3 Credits.
Graduate standing required. Introduction for graduate students to the current literature and critical perspectives in the areas of media and cultural studies.
Grading status: Letter grade.

COMM 752. Media and Social Change. 3 Credits.
This seminar inquires into the range of relationships between media and social life, with a particular emphasis on media's role in movements for social, economic, and/or cultural transformation.
Grading status: Letter grade.

COMM 753. Theories of the Audience/Public. 3 Credits.
This course offers a sustained analysis of the ways in which the media, audience, and/or public have been variously conceptualized historically, in critical theory.
Grading status: Letter grade.

COMM 754. Political, Institutional, and Economic Contexts of Media and Culture. 3 Credits.
A detailed analysis of the relationship between government, policy making, corporate and business interests, and various theoretical approaches to their impact on media and culture. Fall.
Requisites: Prerequisite, COMM 700.
Grading status: Letter grade.

COMM 755. History of Cultural Studies. 3 Credits.
This class introduces cultural studies through its British 'origins,' especially but not only the work of the Centre for Contemporary Cultural Studies and the Open University.
Grading status: Letter grade.

COMM 756. National, International, Transnational, and Global Movie/Media History. 3 Credits.
Explores the economic, social, ideological, technological, and aesthetic development of film and television as international, transnational, transcultural, and global entities, questioning the viability of the concept of national cinema/media in the 21st century.
Grading status: Letter grade.

COMM 758. Studies in Film and Television. 3 Credits.
Graduate introduction to the study of film, television, and video. This course traces the theoretical and methodological development of media studies.
Grading status: Letter grade.

COMM 761. Adaptation Seminar. 3 Credits.
This seminar recognizes and applies narrative theory in understanding texts, lives, and cultural practice broadly.
Grading status: Letter grade.

COMM 769. Topics in Performance Studies. 3 Credits.
Second-year graduate students and/or permission of the instructor. Special problems in performance studies.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

COMM 770. History of Rhetoric I. 3 Credits.
A critical survey of the history of rhetoric, focusing on Classical theories of rhetoric from Greece and Rome through the Medieval period.
Grading status: Letter grade.

COMM 771. History of Rhetoric II. 3 Credits.
A critical survey of the history of rhetoric, focusing on theories of rhetoric from the Renaissance through the 19th century.
Grading status: Letter grade.

COMM 772. Seminar in Contemporary Rhetorical Theory. 3 Credits.
A critical survey of the history of rhetoric focusing on rhetorical theory from the 20th century to the present.
Grading status: Letter grade.

COMM 774. Visual and Material Rhetorics. 3 Credits.
Addresses conceptual and practical issues in the rhetorical analysis and criticism of visual and material objects, practices, and events.
Grading status: Letter grade.

COMM 790. Seminar in Kenneth Burke. 3 Credits.
Seminar is an in-depth analysis of the writings of Kenneth Burke, concentrating on primary source materials.
Grading status: Letter grade.

COMM 792. Philosophy of Communication and Culture. 3 Credits.
Considers the history of and developments in the philosophy of communication and culture, as well as the role these concepts have played in western philosophy.
Requisites: Prerequisite, COMM 700.
Grading status: Letter grade.

COMM 798. Topics in Research Methods. 3 Credits.
Advanced study of selected topics in research methods. Topics vary.
Grading status: Letter grade.

COMM 811. Rhetorical Criticism. 3 Credits.
Investigates the function of rhetorical criticism, the critical method, and a variety of approaches to the performance of rhetorical criticism.
Requisites: Prerequisite, COMM 571; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMM 812. Practicum in Rhetorical Criticism. 3 Credits.
Focuses on practice in writing rhetorical criticism and on mid-range theoretical concepts that inform critical analysis and argument.
Grading status: Letter grade.

COMM 822. Seminar in Family Communication. 3 Credits.
This course is an advanced seminar in which students may study family communication and produce original research.
Grading status: Letter grade.

COMM 824. Seminar in Feminist Studies in Communication. 3 Credits.
This course compares and critically evaluates the work of major feminist scholars in the field of communication. Spring.
Requisites: Prerequisite, COMM 722.
Grading status: Letter grade.

COMM 825. Seminar in Interpersonal and Organizational Communication. 3 Credits.
A variable topic seminar that permits faculty and graduate students the opportunity to explore significant historical and emerging issues in the field of communication.
Grading status: Letter grade.

COMM 841. Performance Ethnography. 3 Credits.
This seminar focuses on methods of ethnography and fieldwork ethics. Performance as theory and practice informs methodological inquiries as well as the analysis of specific ethnographic texts and case studies.
Grading status: Letter grade
Same as: FOLK 841.

COMM 842. Seminar in Performance and Cultural Studies. 3 Credits.
This course focuses on performance-related issues in the emergent field of cultural studies.
Grading status: Letter grade
Same as: FOLK 842.

COMM 843. Seminar in Contemporary Performance Theory. 3 Credits.
An advanced graduate seminar, this course will address recent developments and problems in performance theory. It will consider cross- and multidisciplinary approaches to performance as sites for consideration and debate.
Grading status: Letter grade
Same as: FOLK 843.

COMM 844. Seminar in Performance and History. 3 Credits.
This course explores diverse relations among performance and history, including the performance of life histories, the use of spectacle in history, everyday performances of historical protocols, and performance itself as an historical construct.
Grading status: Letter grade.

COMM 845. The Political Economy of Performance. 3 Credits.
This course examines social relations, particularly power relations, by focusing on resistance as performance and the performance of resistance arising from the dynamics and conflicts within specific locations of a political economy.
Grading status: Letter grade.

COMM 846. Performance Pedagogy. 3 Credits.
Draped in the political, economic, and domestic histories of western culture our current pedagogies still point out the world that matters to each new generation. We will study these pedagogies from the perspectives of institutions, economies, and human relationships they simultaneously reflect and work to transform.
Grading status: Letter grade.

COMM 849. Seminar in Culture and Identity. 3 Credits.
This course looks at issues of the representation and production of identity, subjectivity, and agency - in various forms - in the practices of media.
Grading status: Letter grade.

COMM 850. Seminar in Media Studies. 3 Credits.
Selected problems in media aesthetics. Exact topic to be covered is announced before classes begin.
Grading status: Letter grade.

COMM 851. Research Methods in Media and Cultural Studies. 3 Credits.
Graduate standing required. Introduction to the issues, methods, and materials of research in media and cultural studies.
Grading status: Letter grade.

COMM 852. Seminar in the History of Media. 3 Credits.
Application of historical research techniques to problems in the mass media. Exact topic is announced before classes begin. May be repeated.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

COMM 853. Seminar in Popular Culture. 3 Credits.
This course will look at special topics in the study of popular culture. Designed for advanced graduate studies, it will consider critical responses to existing scholarship with original research.
Grading status: Letter grade.

COMM 854. Seminar in Media Difference. 3 Credits.
This seminar explores critical theories of difference and puts them into dialogue with media representations of difference.
Grading status: Letter grade.

COMM 855. Seminar in Cultural Studies. 3 Credits.
This class explores the impact of some developments in postmodernism - as an interpretive, historical, and philosophical discourse on the possible development of cultural studies.
Requisites: Prerequisite, COMM 755.
Grading status: Letter grade.

COMM 856. Seminar in Communication Technology. 3 Credits.
Examines new communication technologies, their spatial and social diffusion, and how these relate to theories of culture, politics, and technology and the real-world contexts in which technologies are received. May be repeated.
Requisites: Prerequisite, COMM 700.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

COMM 857. Seminar in Cultural Studies and Popular Culture. 3 Credits.
This course will focus on specific topics, issues, or queries of popular culture as these have been or can be studied within cultural studies.
Requisites: Prerequisite, COMM 700.
Grading status: Letter grade.

COMM 858. Seminar in Feminist Studies of Film and Television. 3 Credits.
Graduate standing required. This graduate seminar explores theoretical and practical points of contact between feminism, film, and television using psychoanalysis, narrative analysis, ideological analysis, and cultural studies.
Grading status: Letter grade
Same as: WGST 858.

COMM 859. Seminar in Media and Cultural Studies. 3 Credits.
This course, designed for advanced graduate students, will explore specialized topics in interpretive, critical, and cultural research in media studies.
Grading status: Letter grade.

COMM 860. Aesthetics and Communication. 3 Credits.
Explores how theories of aesthetics have struggled with notions of beauty, value, pleasure, and pain in the human communicative experience.
Grading status: Letter grade.

COMM 873. Rhetoric and Black Culture. 3 Credits.
This course will examine the manner in which Black aesthetic and intellectual expressions and controversies function as public discourse in cultural politics.
Grading status: Letter grade.

COMM 874. Rhetorics of Space and Place. 3 Credits.
Considers place in relation to space and time. Primary concentration on implications of theorizing place as communicative practice rather then communicative context.
Grading status: Letter grade.

COMM 875. Rhetoric and Public Memory. 3 Credits.
Addresses the fundamentally rhetorical character of public memory. Analyzes theoretical presuppositions about memory. Openings for rhetorizing memory.
Grading status: Letter grade.

COMM 879. Topics in Rhetorical and Cultural Studies. 3 Credits.
Special problems in rhetorical and cultural studies. May be repeated.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

COMM 900. Research Practicum. 1-3 Credits.
Permission of the internship coordinator. Individualized practical experience supervised by a faculty advisor and by the departmental coordinator of internships. May be repeated.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

COMM 901. Directed Research. 3 Credits.
Permission of the instructor. Individual research on a problem defined by the graduate student and graduate faculty member in conference. May be repeated.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

COMM 907. Research Practicum in Communication Studies. 3 Credits.
Individualized practical research.
Grading status: Letter grade.

COMM 909. Proseminar in Professional Development. 1 Credit.
This course advances graduate students' exposure to academic resources and common norms, practices, and procedures related to academic professionalism in Communication Studies.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

COMM 992. Master's (Non-Thesis). 3 Credits.
Focuses on the development of a master's project or a major paper other than a thesis
Repeat rules: May be repeated for credit.

COMM 993. Master's Research and Thesis. 3 Credits.

COMM 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF COMPUTER SCIENCE (GRAD)

Contact Information

Department of Computer Science
Visit Program Website (http://www.cs.unc.edu)

Kevin Jeffay, Chair

The Department of Computer Science at UNC–Chapel Hill, established in 1964, was one of the first independent computer science departments in the United States. Its primary missions are research and graduate and undergraduate teaching. Research particularly emphasizes

- big data
- bioinformatics and computational biology
- cloud computing
- computer architecture
- computer graphics
- computer-supported collaborative work
- computer vision
- databases and data mining
- geometric computing
- high-performance computing
- human-computer interaction
- machine learning
- medical image analysis
- networking
- real-time systems
- robotics
- security
- software engineering
- theory

The M.S. and Ph.D. curricula are oriented toward the design and application of real computer systems and toward that portion of theory that guides and supports practice. The Ph.D. program prepares teachers and researchers for positions with universities, government research laboratories, and industry. Academic employment ranges from four-year colleges, where teaching is the primary focus, to positions at major research universities. The M.S. program prepares highly competent and broadly skilled practitioners. A majority of the master's graduates work in industry, in companies ranging from small start-up operations to government laboratories and large research and development corporations.

Most of the department's approximately 150 graduate students are full time. Students contribute to nearly every aspect of the department's operation. In addition to taking a variety of courses, they participate in groundbreaking research, teach, attend research group meetings, and can serve on committees that affect all aspects of life in the department.

The Computer Science Students Association sponsors both professional and social events and represents the students in departmental matters. Its president is a voting member at faculty meetings.

Facilities

The Department of Computer Science is housed in two adjacent buildings, the Frederick P. Brooks Jr. Computer Science Building and J. Carlyle Sitterson Hall. These two buildings are connected by hallways on all floors so that they function as a single, larger building.

The Brooks Building was dedicated in 2008 and named for the department's founding chair, Frederick P. Brooks Jr. It opened up 32,000 square feet of new research space, offices, and classrooms. These include a 50-seat classroom; the Stephen F. Weiss Seminar Room, with seating for 20 around a table; the Registrar's classroom, with theater seating for 80; and the Faculty Conference Room, which seats 50 at tiers of curved desktops. Meetings or discussion groups take place in the chair's conference room and in five smaller meeting areas, each with projectors. Perhaps the most striking area of the building is the new noise-controlled graphics laboratory, which is divided into three areas by floor-to-ceiling blackout curtains for light and sound suppression. It has 11-foot ceilings and a unistrut mounting grid to mount hardware as needed.

Sitterson Hall, which opened in 1987 and is named for former University Chancellor J. Carlyle Sitterson, provides 74,000 square feet of sophisticated, state-of-the-art research facilities and office space. It is organized in clusters to create research communities featuring shared laboratories and open conference areas to facilitate interaction among students and faculty. Included are the 60-seat C. Hugh Holman video teleclassroom, named for the former provost and dean of The Graduate School who was instrumental in establishing this department; a 125-seat auditorium; the Lib Moore Jones Classroom, named for the department's first secretary; a reading room; and various research laboratories, conference areas, and study areas.

Graduate students have access to all of the department's research and teaching facilities, including specialized research laboratories for graphics and image processing, computer building and design, and collaborative, distributed, and parallel systems. The laboratories, offices, conference areas, and classrooms are bound together by the department's fully integrated, distributed computing environment.

General Computing Environment

The department's computing environment includes over 1,000 computers, ranging from older systems used for generating network traffic for simulated Internet experiments to state-of-the-art workstations and clusters for graphics- and compute-intensive research. Departmental servers provide compute service, disk space, e-mail, CVS (version control software), Web service, database services, backups, and many other services. All systems are integrated by means of high-speed networks and are supported by a highly skilled technical staff that provides a consistent computing environment throughout the department. The data network provides connections at either 100 Mbps, 1Gbps, or 10 Gbps. Most students are assigned to a two- or three-person office, though some larger offices can hold more students. Each student is assigned a computer, with computer assignments based on the students' research or teaching assignments and their seniority within the department. In addition to the departmental servers and office systems, our research laboratories contain a variety of specialized equipment and facilities.

General computing systems include 800+ Intel-based computers as well as about 50 Macintosh systems. The department's most powerful system is the Biomedical Analysis and Simulation Supercomputer (BASS, pronounced like "base"), which consists of 452 CPUs tightly coupled to each other and to 180 GPU computing processors that function as

image and geometry calculation accelerators, providing the equivalent computing power of more than 13,000 processors for image-intensive applications.

Our systems primarily run the Windows 7 operating system, and a smaller number of systems, including many of the servers, run Ubuntu or Red Hat Linux. We use the AFS file system for central file storage. Languages most commonly used include J++, C++, Java, and C. Document preparation is usually accomplished with standard applications on PC systems. Our extensive software holdings are continually evolving.

Libraries

Students have access to the entire University library system, which includes a major academic affairs library and numerous satellite libraries containing more than 6,000,000 books and periodicals, as well as access to libraries at North Carolina State, Duke, and North Carolina Central Universities with a unified online searching capability. The Kenan Science Library, located in Venable Hall, and the Science Library Annex, located in Wilson Library, are libraries with extensive holdings in computer science, mathematics, operations research, physics, and statistics.

Admissions and Financial Aid

Admission to the department is highly competitive, and preference is given to applicants who are solidly prepared. Although the department welcomes promising students from all disciplines, entering students must have a substantial background in both mathematics and computer science. This background normally includes at least six semester courses in mathematics and six in computer science. Students who are admitted but who have not completed all the requirements must complete them after admission. For more in-depth information on the admissions process see the department's (http://cs.unc.edu/admissions/graduate/graduate-programs) and The Graduate School's (http://gradschool.unc.edu/admissions) Web sites.

Sponsorship

Because of the large number of applicants, the department's faculty members are unable to provide individual assessments of an applicant's chances for admission. Applicants cannot improve their chances of admission by finding a faculty sponsor within the department, because all admissions decisions are made by a faculty committee that reviews all applications, ranks the applicants by overall merit, and makes decisions on admission and financial support based on the application material submitted. Students are assigned to specific research projects just prior to the start of each semester, after faculty members and students have had an opportunity to meet and to discuss their interests.

Deadlines

Applicants for fall admission are encouraged to submit all application materials, complete with a personal statement, all transcripts, and recommendations, to The Graduate School by early January. To ensure meeting that deadline, applicants are encouraged to take the Graduate Record Examination (GRE) no later than December 1. Early submission of applications is encouraged. International applicants should complete their applications earlier to allow time for processing financial and visa documents.

For more information, send electronic mail to info@cs.unc.edu. Interested persons are encouraged to visit the department's Web site (http://www.cs.unc.edu).

A flexible course of study for the M.S. and Ph.D. degrees focuses on areas of choice and accommodates differences in students' backgrounds. The two degree programs share a basic distribution requirement chosen from theory and formal thinking, systems and hardware, and applications subject areas. The Ph.D. program includes work in specialized areas, preparation for teaching, and active involvement in advanced research.

Master of Science

An M.S. candidate must earn 30 semester hours of credit in courses numbered 400 or higher (with the exception of some introductory courses), of which up to six hours may be transferred from another institution or graduate program, and of which 18 hours must be completed in the Department of Computer Science. A candidate must also satisfy the program product requirement and must demonstrate the ability to write a professional-quality technical document. A comprehensive exam (written or oral) is required for degree completion. For more in-depth information (http://cs.unc.edu/academics/graduate/ms-requirements) see the department's Web site.

Doctor of Philosophy

Admission to the doctoral program is by a vote of the department faculty and is determined by performance on the preliminary research presentation and exam, course grades, admissions information, accomplishment on assistantships, and other testimony from the faculty. Admission is normally considered following the research presentation and exam. Students who have been major contributors to a paper submitted to a well-known, refereed conference or journal may apply for a waiver of the admissions exam. There is no credit hour requirement for the Ph.D. program, but a Ph.D. candidate must complete courses to satisfy the distribution requirement and any needed background preparation, and must write a comprehensive paper. A candidate must also satisfy the program product requirement, participate in the technical communication seminar, pass an oral examination in the proposed dissertation area, and submit and defend a dissertation that presents an original contribution to knowledge. The normal time needed to complete the degree by a full-time student with an assistantship is five years. For more in-depth information (http://cs.unc.edu/academics/graduate/phd-requirements) see the department's Web site.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Stanley Ahalt (82), Director of the Renaissance Computing Institute (RENCI); Signal, Image, and Video Processing; High-Performance Scientific and Industrial Computing; Pattern Recognition Applied to National Security Problems; High-Productivity, Domain-Specific Languages

James Anderson (62), Real-Time Systems, Distributed and Concurrent Algorithms, Multicore Computing, Operating Systems

Sanjoy K. Baruah (78), Scheduling Theory, Real-Time and Safety-Critical System Design, Computer Networks, Resource Allocation and Sharing in Distributed Computing Environments

Gary Bishop (39), Hardware and Software for Man-Machine Interaction, Assistive Technology, 3D Interactive Computer Graphics, Virtual Environments, Image-Based Rendering

Frederick P. Brooks Jr. (9), 3-D Interactive Computer Graphics, Human-Computer Interaction, Virtual Worlds, Computer Architecture, the Design Process

Prasun Dewan (63), User Interfaces, Distributed Collaboration, Software Engineering Environments, Mobile Computing, Access Control
Henry Fuchs (11), Virtual Environments, Telepresence, Future Office Environments, 3-D Medical Imaging, Computer Vision and Robotics
Kevin Jeffay (40), Computer Networking, Operating Systems, Real-Time Systems, Multimedia Networking, Performance Evaluation
Anselmo A. Lastra (52), Interactive 3-D Computer Graphics, Hardware Architectures for Computer Graphics
Ming C. Lin (72), Physically Based and Geometric Modeling, Applied Computational Geometry, Robotics, Distributed Interactive Simulation, Virtual Environments, Algorithm Analysis, Many-Core Computing
Dinesh Manocha (58), Interactive Computer Graphics, Geometric and Solid Modeling, Robotics Motion Planning, Many-Core Algorithms
Fabian Monrose (91), Computer and Network Security, Biometrics and User Authentication
Stephen M. Pizer (6), Image Display and Analysis, Medical Imaging, Human and Computer Vision, Graphics
David A. Plaisted (28), Mechanical Theorem Proving, Term Rewriting Systems, Logic Programming, Algorithms
Jan F. Prins (33), High Performance Computing: Parallel Algorithms, Programming Languages, Compilers, and Architectures; Scientific Computing with Focus on Computational Biology and Bioinformatics
Michael K. Reiter (95), Computer and Network Security, Distributed Systems, Applied Cryptography
Jack S. Snoeyink (79), Computational Geometry, Algorithms for Geographical Information Systems and Structural Biology, Geometric Modeling and Computation, Algorithms and Data Structures, Theory of Computation
David Stotts (59), Computer-Supported Cooperative Work, Especially Collaborative User Interfaces; Software Engineering, Design Patterns and Formal Methods; Hypermedia and Web Technology

Associate Professors

Ron Alterovitz (99), Medical Robotics, Motion Planning, Physically Based Simulation, Assistive Robotics, Medical Image Analysis
Tamara Berg (48), Computer Vision, Natural Language Processing, Visual Recognition and Retrieval, Visual Social Media and Socio-Identity, Human-In-The-Loop Recognition, Gaze Pattern Analysis, Image Description Generation, Clothing Recognition
Jan-Michael Frahm (97), Structure from Motion, Camera Self-Calibration, Camera Sensor Systems, Multi-Camera Systems, Multi-View Stereo, Robust Estimation, Fast Tracking of Salient Features in Images and Video, Computer Vision, Active Vision for Model Improvement, Markerless Augmented Reality
Jasleen Kaur (88), Design and Analysis of Networks and Distributed Systems, High-Speed Congestion Control, Resource Management, Internet Measurements, and Transport Protocols
Ketan Mayer-Patel (80), Multimedia Systems, Networking, Multicast Applications
Leonard McMillan (87), Computational Biology, Genetics, Genomics, Bioinformatics, Information Visualization, Data-Driven Modeling, Image Processing, Imaging Technologies, Computer Graphics
Marc Niethammer (98), Quantitative Image Analysis, Shape Analysis, Image Segmentation, Deformable Registration, Image-Based Estimation Methods
Montek Singh (84), High-Performance and Low-Power Digital Systems, Asynchronous and Mixed-Timing Circuits and Systems, VLSI CAD Tools, Energy-Efficient Graphics Hardware, Applications to Computer Security, Emerging Computing Technologies

Assistant Professors

Alexander Berg (46), Computer Vision, Machine Learning, Recognition, Detection, Large-Scale Learning for Computer Vision, Machine Learning Analysis of fMRI
Vladimir Jojic (124), Bioinformatics, Computational Biology, Machine Learning
Shahriar Nirjon (137), Mobile Computing, Embedded Sensor Systems, Wireless Networks, Data Analytics for Mobile Systems
Cynthia Sturton (132), Computer and Hardware Security, Applied Formal Methods for Software Security

Research Professors

Diane Pozefsky (93), Software Engineering and Environments, Computer Education, Serious Games Design and Development, Social, Legal and Ethical Issues Concerning Information Technology
F. Donelson Smith (42), Computer Networks, Operating Systems, Distributed Systems, Multimedia

Research Associate Professors

Martin Styner (94), Medical Image Processing and Analysis Including Anatomical Structure and Tissue Segmentation, Morphometry Using Shape Analysis, Modeling and Atlas Building, Intra and Inter-Modality Registration
Mary C. Whitton (81), Developing and Evaluating Technology for Virtual and Augmented Reality Systems, Virtual Locomotion, Tools for Serious Games

Research Assistant Professors

Jay Aikat (126), Experimental Methods and Models in Networking Research and Education, Measurement and Modeling of Internet Traffic, Protocol Benchmarking, Internet Traffic Generation, Wireless Networks, Congestion Control and Active Queue Management
Enrique Dunn-Rivera (131), View Planning for Autonomous 3-D Model Acquisition, Evolutionary Computation for Multi-Objective Opimization

Senior Lecturer

Tessa Joseph Nicholas (86), New Media Arts and Poetics, Digital Communities, Digital-Age Ethics

Lecturer

Kris Jordan, Educational Technology, Distributed Systems, Entrepreneurship

Adjunct Professors

Rob Fowler (110), High-Performance Computing
Guido Gerig (75), Image Analysis, Shape-Based Object Recognition, 3-D Object Representation and Quantitative Analysis, Medical Image Processing
Ashok Krishnamurthy, Data Science, Health Informatics and Applications
J. Stephen Marron (114), Smoothing Methods for Curve Estimation
John McHugh (129), Computer and Network Security
Steven E. Molnar (108), Architectures for Real-Time Computer Graphics, VLSI-Based System Design, Parallel Rendering Algorithms
Marc Pollefeys (89), Computer Vision, Image-Based Modeling and Rendering, Image and Video Analysis, Multi-View Geometry
John Poulton (120), Graphics Architectures, VLSI-Based System Design, Design Tools, Rapid System Prototyping

Julian Rosenman (112), Computer Graphics for Treatment of Cancer Patients, Contrast Enhancement for X-Rays
Richard Superfine (115), Condensed Matter Physics, Biophysics, Microscopy
Alexander Tropsha (111), Computer-Assisted Drug Design, Computational Toxicology, Cheminformatics, Structural Bioinformatics
Wei Wang (90), Bioinformatics and Computational Biology, Data Mining, Database Systems
Sean Washburn (116), Condensed Matter Physics, Materials Science
Gregory F. Welch (71), Human Motion Tracking Systems, 3-D Telepresence, Projector-Based Graphics, Computer Vision and View Synthesis, Medical Applications of Computers
Turner Whitted (122), Algorithms, Architectures, Displays for Graphics Applications including Virtual and Augmented Reality

Adjunct Associate Professors

Stephen R. Aylward (109), Computer-Aided Diagnosis, Computer-Aided Surgical Planning, Statistical Pattern Recognition, Image Processing, Neural Networks
Shawn Gomez (102), Bioinformatics, Computational Biology, Systems Biology
Chris Healey (105), Computer Graphics, Scientific Visualization, Perception and Cognitive Vision, Color, Texture, Databases, and Computational Geometry
Hye-Chung Kum (103), Social Welfare Intelligence and Informatics, Health Informatics, Government Informatics, Data Mining, KDD (Knowledge Discovery in Databases), Government Administrative Data
Lars Nyland (117), High Performance Computing, Hardware Systems, Computer Graphics and Image Analysis, Geometric Modeling and Computation
Allan Porterfield, High Performance Computing, Compilers, Run-Time Systems
Dinggang Shen (104), Medical Image Analysis, Computer Vision, Pattern Recognition

Adjunct Assistant Professors

Brad Davis (107), Image Analysis, Shape Analysis, Image Processing, Statistical Methods in Nonlinear Spaces, Medical Applications, Visualization, Software Engineering
Mark Foskey (118), Medical Image Analysis, Especially in Cancer Therapy, Geometric Computation
Svetlana Lazebnik (96), Object Recognition and Scene Interpretation, Internet Photo Collections, Reconstruction of 3-D Objects from Photos/Video, Machine Learning Techniques for Visual Recognition Problems, Clustering and Vector Quantization, Nonlinear Dimensionality Reduction and Manifold Learning
Yun Li (128), Statistical Genetics
Ben Major, Bioinformatics, Proteomics, Mass Spectrometry, Network Analysis, Signal Transduction
Ipek Oguz (125), Medical Image Analysis
Beatriz Paniagua (51), Advanced Computer Vision Techniques Applied to Quality Control Industrial Environments
William Valdar (130), Mapping of Complex Disease Loci in Animal Models, Statistical Genetics

Professors Emeriti

Fred Brooks
Peter Calingaert
John H. Halton
Gyula A. Magó
John B. Smith
Donald F. Stanat
Stephen F. Weiss

Research Professor Emeritus

William V. Wright

Lecturer Emeritus

Leandra Vicci

COMP

Advanced Undergraduate and Graduate-level Courses

COMP 401. Foundation of Programming. 4 Credits.
Required preparation, a first formal course in computer programming (e.g., COMP 110, COMP 116). Advanced programming: object-oriented design, classes, interfaces, packages, inheritance, delegation, observers, MVC (model view controller), exceptions, assertions. Honors version available
Requisites: Prerequisite, MATH 231 or MATH 241; a grade of C or better is required.
Gen Ed: QR.
Grading status: Letter grade.

COMP 401H. Foundation of Programming. 4 Credits.
Required preparation, a first formal course in computer programming (e.g., COMP 110, COMP 116). Advanced programming: object-oriented design, classes, interfaces, packages, inheritance, delegation, observers, MVC (model view controller), exceptions, assertions.
Requisites: Prerequisite, MATH 231 or MATH 241; a grade of C or better is required.
Gen Ed: QR.
Grading status: Letter grade.

COMP 410. Data Structures. 3 Credits.
The analysis of data structures and their associated algorithms. Abstract data types, lists, stacks, queues, trees, and graphs. Sorting, searching, hashing.
Requisites: Prerequisites, MATH 231 or 241, and COMP 401; a grade of C or better is required in all prerequisite courses.
Grading status: Letter grade.

COMP 411. Computer Organization. 4 Credits.
Digital logic, circuit components. Data representation, computer architecture and implementation, assembly language programming.
Requisites: Prerequisites, MATH 231 or 241,and COMP 401; a grade of C or better is required in all prerequisite courses.
Grading status: Letter grade.

COMP 426. Modern Web Programming. 3 Credits.
Developing applications for the World Wide Web including both client-side and server-side programming. Emphasis on Model-View-Controller architecture, AJAX, RESTful Web services, and database interaction.
Requisites: Prerequisites, COMP 401 and 410; a grade of C or better is required in COMP 401 and 410.
Grading status: Letter grade.

COMP 431. Internet Services and Protocols. 3 Credits.
Application-level protocols HTTP, SMTP, FTP, transport protocols TCP and UDP, and the network-level protocol IP. Internet architecture, naming, addressing, routing, and DNS. Sockets programming. Physical-layer technologies. Ethernet, ATM, and wireless.
Requisites: Prerequisites, COMP 401, 410, 411; a grade of C or better is required in COMP 401, 410, and 411.
Grading status: Letter grade.

COMP 433. Mobile Computing Systems. 3 Credits.
Principles of mobile applications, mobile OS, mobile networks, and embedded sensor systems. Coursework includes programming assignments, reading from recent research literature, and a semester long project on a mobile computing platform (e.g., Android, Arduino, iOS, etc.).
Requisites: Prerequisites, COMP 401, 410, and 411; a grade of C or better is required in COMP 401, 410, and 411.
Grading status: Letter grade.

COMP 435. Computer Security Concepts. 3 Credits.
Introduction to topics in computer security including confidentiality, integrity, availability, authentication policies, basic cryptography and cryptographic protocols, ethics, and privacy. A student may not receive credit for this course after receiving credit for COMP 535.
Requisites: Prerequisites, COMP 401, 410, and 411; a grade of C or better is required in COMP 401, 410, and 411.
Grading status: Letter grade.

COMP 447. Quantum Computing. 3 Credits.
Recommended preparation, some knowledge of basic linear algebra. An introduction to quantum computing. Basic math and quantum mechanics necessary to understand the operation of quantum bits. Quantum gates, circuits, and algorithms, including Shor's algorithm for factoring and Grover's search algorithm. Entanglement and error correction. Quantum encryption, annealing, and simulation. Brief discussion of technologies.
Requisites: Prerequisites, MATH 232, and PHYS 116 or 118.
Grading status: Letter grade
Same as: PHYS 447.

COMP 455. Models of Languages and Computation. 3 Credits.
Introduction to the theory of computation. Finite automata, regular languages, pushdown automata, context-free languages, and Turing machines. Undecidable problems.
Requisites: Prerequisites, COMP 110, 166, or 401; and COMP 283 or MATH 381; a grade of C or better in both courses is required.
Grading status: Letter grade.

COMP 475. 2D Computer Graphics. 3 Credits.
Fundamentals of modern software 2D graphics; geometric primitives, scan conversion, clipping, transformations, compositing, texture sampling. Advanced topics may include gradients, antialiasing, filtering, parametric curves, and geometric stroking.
Requisites: Prerequisites, COMP 401, 410, and 411; a grade of C or better is required in all prerequisite courses.
Grading status: Letter grade.

COMP 486. Applications of Natural Language Processing. 3 Credits.
Study of applications of natural language processing techniques and the representations and processes needed to support them. Topics include interfaces, text retrieval, machine translation, speech processing, and text generation.
Requisites: Prerequisite, COMP 110, 116, or 410.
Grading status: Letter grade
Same as: INLS 512.

COMP 487. Information Retrieval. 3 Credits.
Study of information retrieval and question answering techniques, including document classification, retrieval and evaluation techniques, handling of large data collections, and the use of feedback.
Grading status: Letter grade
Same as: INLS 509.

COMP 495. Mentored Research in Computer Science. 3 Credits.
Independent research conducted under the direct mentorship of a computer science faculty member. This course cannot be counted toward the completion of the major or minor. For computer science majors only. Permission of instructor required.
Gen Ed: EE- Mentored Research.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

COMP 496. Independent Study in Computer Science. 3 Credits.
Permission of the department. Computer science majors only. For advanced majors in computer science who wish to conduct an independent study or research project with a faculty supervisor. May be taken repeatedly for up to a total of six credit hours.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

COMP 520. Compilers. 3 Credits.
Design and construction of compilers. Theory and pragmatics of lexical, syntactic, and semantic analysis. Interpretation. Code generation for a modern architecture. Run-time environments. Includes a large compiler implementation project.
Requisites: Prerequisites, COMP 401, 410, 411, and 455; a grade of C or better is required in all prerequisite courses.
Grading status: Letter grade.

COMP 521. Files and Databases. 3 Credits.
Placement of data on secondary storage. File organization. Database history, practice, major models, system structure and design.
Requisites: Prerequisites, COMP 401, 410, and 411; a grade of C or better is required in COMP 401, 410, and 411.
Grading status: Letter grade.

COMP 523. Software Engineering Laboratory. 4 Credits.
Organization and scheduling of software engineering projects, structured programming, and design. Each team designs, codes, and debugs program components and synthesizes them into a tested, documented program product.
Requisites: Prerequisites, COMP 401, 410, 411, and at least two chosen from COMP 426, 431, 433, 520, 521, 530, 535, 560, 562, 575, 580, 585; a grade of C or better in COMP 401, 410, and 411 is required.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

COMP 524. Programming Language Concepts. 3 Credits.
Concepts of high-level programming and their realization in specific languages. Data types, scope, control structures, procedural abstraction, classes, concurrency. Run-time implementation.
Requisites: Prerequisites, COMP 401, 410, 411 and 455; a grade of C or better is required in all prerequisite courses.
Grading status: Letter grade.

COMP 530. Operating Systems. 3 Credits.
Types of operating systems. Concurrent programming. Management of storage, processes, devices. Scheduling, protection. Case study. Course includes a programming laboratory. Honors version available
Requisites: Prerequisites, COMP 401, 410, and 411; a grade of C or better in COMP 401, 410, and 411 is required.
Grading status: Letter grade.

COMP 530H. Operating Systems. 3 Credits.
Types of operating systems. Concurrent programming. Management of storage, processes, devices. Scheduling, protection. Case study. Course includes a programming laboratory.
Requisites: Prerequisites, COMP 401, 410, and 411; a grade of C or better in COMP 401, 410, and 411 is required.
Grading status: Letter grade.

COMP 533. Distributed Systems. 3 Credits.
Distributed systems and their goals; resource naming, synchronization of distributed processes; consistency and replication; fault tolerance; security and trust; distributed object-based systems; distributed file systems; distributed Web-based systems; and peer-to-peer systems.
Requisites: Prerequisite, COMP 431 or 530; a grade of C or better is required; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMP 535. Introduction to Computer Security. 3 Credits.
Principles of securing the creation, storage, and transmission of data and ensuring its integrity, confidentiality and availability. Topics include access control, cryptography and cryptographic protocols, network security, and online privacy.
Requisites: Prerequisites, COMP 401, 410, 550, and COMP 283 or MATH 381; a grade of C or better is required in all four courses.
Grading status: Letter grade.

COMP 541. Digital Logic and Computer Design. 4 Credits.
This course is an introduction to digital logic as well as the structure and electronic design of modern processors. Students will implement a working computer during the laboratory sessions.
Requisites: Prerequisites, COMP 401 and 411; a grade of C or better in COMP 401 and 411 is required.
Grading status: Letter grade.

COMP 550. Algorithms and Analysis. 3 Credits.
Formal specification and verification of programs. Techniques of algorithm analysis. Problem-solving paradigms. Survey of selected algorithms.
Requisites: Prerequisites, COMP 401, 410, and COMP 283 or MATH 381; a grade of C or better is required in all prerequisite courses.
Grading status: Letter grade.

COMP 555. Bioalgorithms. 3 Credits.
Bioinformatics algorithms. Topics include DNA restriction mapping, finding regulatory motifs, genome rearrangements, sequence alignments, gene prediction, graph algorithms, DNA sequencing, protein sequencing, combinatorial pattern matching, approximate pattern matching, clustering and evolution, tree construction, Hidden Markov Models, randomized algorithms.
Requisites: Prerequisites, COMP 401, 410, and MATH 231 or 241; or BIOL 452; or MATH 553; or BIOL 525; a grade of C or better is required in all prerequisite courses.
Grading status: Letter grade
Same as: BCB 555.

COMP 560. Artificial Intelligence. 3 Credits.
Introduction to techniques and applications of modern artificial intelligence. Combinatorial search, probabilistic models and reasoning, and applications to natural language understanding, robotics, and computer vision.
Requisites: Prerequisites, COMP 401, 410, and MATH 231 or 241; a grade of C or better is required in all prerequisite courses.
Grading status: Letter grade.

COMP 562. Introduction to Machine Learning. 3 Credits.
Machine learning as applied to speech recognition, tracking, collaborative filtering and recommendation systems. Classification, regression, support vector machines, hidden Markov models, principal component analysis, and deep learning.
Requisites: Prerequisites, COMP 401, 410, MATH 233, and STOR 435; a grade of C or better is required in all prerequisite courses; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

COMP 572. Computational Photography. 3 Credits.
The course provides a hands on introduction to techniques in computational photography--the process of digitally recording light and then performing computational manipulations on those measurements to produce an image or other representation. The course includes an introduction to relevant concepts in computer vision and computer graphics.
Requisites: Prerequisites, COMP 401, 410, and MATH 547 or 577; a grade of C or better is required in all prerequisite courses.
Grading status: Letter grade.

COMP 575. Introduction to Computer Graphics. 3 Credits.
Hardware, software, and algorithms for computer graphics. Scan conversion, 2-D and 3-D transformations, object hierarchies. Hidden surface removal, clipping, shading, and antialiasing. Not for graduate computer science credit.
Requisites: Prerequisites, COMP 401, 410, 411, and MATH 547 or MATH 577; a grade of C or better is required in all prerequisite courses.
Grading status: Letter grade.

COMP 576. Mathematics for Image Computing. 3 Credits.
Mathematics relevant to image processing and analysis using real image computing objectives and provided by computer implementations.
Requisites: Prerequisites, COMP 116 or 401, and MATH 233; a grade of C or better is required in COMP 116 or 401, and MATH 233.
Grading status: Letter grade
Same as: BMME 576.

COMP 580. Enabling Technologies. 3 Credits.
We will investigate ways computer technology can be used to mitigate the effects of disabilities and the sometimes surprising response of those we intended to help.
Requisites: Prerequisites, COMP 401 and 410; a grade of C or better is required in COMP 401 and 410.
Gen Ed: EE- Service Learning.
Grading status: Letter grade.

COMP 581. Introduction to Robotics. 3 Credits.
Hands-on introduction to robotics with a focus on the computational aspects. Students will build and program mobile robots. Topics include kinematics, actuation, sensing, configuration spaces, control, and motion planning. Applications include industrial, mobile, personal, and medical robots. Honors version available
Requisites: Prerequisites, COMP 401 and 410; a grade of C or better is required in all prerequisite courses.
Grading status: Letter grade.

COMP 581H. Introduction to Robotics. 3 Credits.
Hands-on introduction to robotics with a focus on the computational aspects. Students will build and program mobile robots. Topics include kinematics, actuation, sensing, configuration spaces, control, and motion planning. Applications include industrial, mobile, personal, and medical robots.
Requisites: Prerequisites, COMP 401 and 410; a grade of C or better is required in all prerequisite courses.
Grading status: Letter grade.

COMP 585. Serious Games. 3 Credits.
Concepts of computer game development and their application beyond entertainment to fields such as education, health, and business. Course includes team development of a game. Honors version available
Requisites: Prerequisites, COMP 401, 410, 411, and 426; a grade of C or better is required in all prerequisite courses.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

COMP 585H. Serious Games. 3 Credits.
Concepts of computer game development and their application beyond entertainment to fields such as education, health, and business. Course includes team development of a game.
Requisites: Prerequisites, COMP 401, 410, 411, and 426; a grade of C or better is required in all prerequisite courses.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

COMP 590. Topics in Computer Science. 3 Credits.
Permission of the instructor. This course has variable content and may be taken multiple times for credit. Different sections may be taken in the same semester. Honors version available
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

COMP 590H. Topics in Computer Science. 3 Credits.
Permission of the instructor. This course has variable content and may be taken multiple times for credit. Different sections may be taken in the same semester.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

COMP 631. Computer Networks. 3 Credits.
Required preparation, a first course in operating systems, a first course in networking (e.g., COMP 431 and 530), and knowledge of probability and statistics. Topics in computer networks, including link layer protocols, switching, IP, TCP, and congestion control. Additional topics may include peer-to-peer infrastructures, network security, and multimedia applications.
Grading status: Letter grade.

COMP 633. Parallel and Distributed Computing. 3 Credits.
Required preparation, a first course in operating systems and a first course in algorithms (e.g., COMP 530 and 550). Principles and practices of parallel and distributed computing. Models of computation. Concurrent programming languages and systems. Architectures. Algorithms and applications. Practicum.
Grading status: Letter grade.

COMP 635. Wireless and Mobile Communications. 3 Credits.
This course builds an understanding of the core issues encountered in the design of wireless (vs. wired) networks. It also exposes students to fairly recent paradigms in wireless communication.
Requisites: Prerequisite, COMP 431.
Grading status: Letter grade.

COMP 636. Distributed Collaborative Systems. 3 Credits.
Design and implementation of distributed collaborative systems. Collaborative architectures, consistency of replicated objects, collaborative user-interfaces, application and system taxonomies, application-level multicast, performance, causality, operation transformation, and concurrency and access control.
Requisites: Prerequisite, COMP 431 or 530; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMP 651. Computational Geometry. 3 Credits.
Required preparation, a first course in algorithms (e.g., COMP 550). Design and analysis of algorithms and data structures for geometric problems. Applications in graphics, CAD/CAM, robotics, GIS, and molecular biology.
Grading status: Letter grade.

COMP 655. Cryptography. 3 Credits.
Introduction to design and analysis of cryptographic algorithms. Topics include basis of abstract algebra and number theory, symmetric and asymmetric encryption algorithms, cryptographic hash functions, message authentication codes, digital signature schemes, elliptic curve algorithms, side-channel attacks, selected advanced topics
Requisites: Prerequisites, COMP 455 and STOR 435; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

COMP 662. Scientific Computation II. 3 Credits.
Theory and practical issues arising in linear algebra problems derived from physical applications, e.g., discretization of ODEs and PDEs. Linear systems, linear least squares, eigenvalue problems, singular value decomposition.
Requisites: Prerequisite, MATH 661.
Grading status: Letter grade
Same as: MATH 662, ENVR 662.

COMP 665. Images, Graphics, and Vision. 3 Credits.
Required preparation, a first course in data structures and a first course in discrete mathematics (e.g., COMP 410 and MATH 383). Display devices and procedures. Scan conversion. Matrix algebra supporting viewing transformations in computer graphics. Basic differential geometry. Coordinate systems, Fourier analysis, FDFT algorithm. Human visual system, psychophysics, scale in vision.
Gen Ed: QI.
Grading status: Letter grade.

COMP 672. Simulation Modeling and Analysis. 3 Credits.
Introduces students to modeling, programming, and statistical analysis applicable to computer simulations. Emphasizes statistical analysis of simulation output for decision-making. Focuses on discrete-event simulations and discusses other simulation methodologies such as Monte Carlo and agent-based simulations. Students model, program, and run simulations using specialized software. Familiarity with computer programming recommended.
Requisites: Prerequisites, STOR 555 and 641.
Grading status: Letter grade
Same as: STOR 672.

COMP 690. Special Topics in Computer Science. 1-4 Credits.
This course has variable content and may be taken multiple times for credit. COMP 690 courses do not count toward the major or minor.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 8 total credits. 2 total completions.
Grading status: Letter grade.

COMP 691H. Honors Thesis in Computer Science. 3 Credits.
For computer science majors only and by permission of the department. Individual student research for students pursuing an honors thesis in computer science under the supervision of a departmental faculty adviser.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

COMP 692H. Honors Thesis in Computer Science. 3 Credits.
Permission of the department. Required of all students in the honors program in computer science. The construction of a written honors thesis and an oral public presentation of the thesis are required.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

COMP 715. Visualization in the Sciences. 3 Credits.
Computational visualization applied in the natural sciences. For both computer science and natural science students. Available techniques and their characteristics, based on human perception, using software visualization toolkits. Project course.
Grading status: Letter grade
Same as: MTSC 715, PHYS 715.

COMP 720. Compilers. 3 Credits.
Tools and techniques of compiler construction. Lexical, syntactic, and semantic analysis. Emphasis on code generation and optimization.
Requisites: Prerequisites, COMP 455, 520, and 524.
Grading status: Letter grade.

COMP 721. Database Management Systems. 3 Credits.
Database management systems, implementation, and theory. Query languages, query optimization, security, advanced physical storage methods and their analysis.
Requisites: Prerequisites, COMP 521 and 550.
Grading status: Letter grade.

COMP 722. Data Mining. 3 Credits.
Data mining is the process of automatic discovery of patterns, changes, associations, and anomalies in massive databases. This course provides a survey of the main topics (including and not limited to classification, regression, clustering, association rules, feature selection, data cleaning, privacy, and security issues) and a wide spectrum of applications.
Requisites: Prerequisites, COMP 550 and STOR 435.
Grading status: Letter grade.

COMP 723. Software Design and Implementation. 3 Credits.
Principles and practices of software engineering. Object-oriented and functional approaches. Formal specification, implementation, verification, and testing. Software design patterns. Practicum.
Requisites: Prerequisites, COMP 524 and 550.
Grading status: Letter grade.

COMP 724. Programming Languages. 3 Credits.
Selected topics in the design and implementation of modern programming languages. Formal semantics. Type theory. Inheritance. Design of virtual machines. Garbage collection. Principles of restructuring compilers.
Requisites: Prerequisites, COMP 455, 520, and 524.
Grading status: Letter grade.

COMP 730. Operating Systems. 3 Credits.
Theory, structuring, and design of operating systems. Sequential and cooperating processes. Single processor, multiprocessor, and distributed operating systems.
Requisites: Prerequisite, COMP 530.
Grading status: Letter grade.

COMP 734. Distributed Systems. 3 Credits.
Design and implementation of distributed computing systems and services. Inter-process communication and protocols, naming and name resolution, security and authentication, scalability, high availability, replication, transactions, group communications, distributed storage systems.
Requisites: Prerequisite, COMP 431; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMP 735. Distributed and Concurrent Algorithms. 3 Credits.
Verification of concurrent systems. Synchronization; mutual exclusion and related problems, barriers, rendezvous, nonblocking algorithms. Fault tolerance: consensus, Byzantine agreement, self-stabilization. Broadcast algorithms. Termination and deadlock detection. Clock synchronization.
Requisites: Prerequisites, COMP 530 and 550.
Grading status: Letter grade.

COMP 737. Real-Time Systems. 3 Credits.
Taxonomy and evolution of real-time systems. Timing constraints. Design, implementation, and analysis of real-time systems. Theory of deterministic scheduling and resource allocation. Case studies and project.
Requisites: Prerequisite, COMP 530.
Grading status: Letter grade.

COMP 740. Computer Architecture and Implementation. 3 Credits.
Architecture and implementation of modern single-processor computer systems. Performance measurement. Instruction set design. Pipelining. Instruction-level parallelism. Memory hierarchy. I/O system. Floating-point arithmetic. Case studies. Practicum.
Requisites: Prerequisites, COMP 411 and PHYS 352.
Grading status: Letter grade.

COMP 741. Elements of Hardware Systems. 3 Credits.
Issues and practice of information processing hardware systems for computer scientists with little or no previous hardware background. System thinking, evaluating technology alternatives, basics of electronics, signals, sensors, noise, and measurements.
Requisites: Prerequisite, COMP 411.
Grading status: Letter grade.

COMP 744. VLSI Systems Design. 3 Credits.
Required preparation, knowledge of digital logic techniques. Introduction to the design, implementation, and realization of very large-scale integrated systems. Each student designs a complete digital circuit that will be fabricated and returned for testing and use.
Requisites: Prerequisite, COMP 740.
Grading status: Letter grade.

COMP 750. Algorithm Analysis. 3 Credits.
Algorithm complexity. Lower bounds. The classes P, NP, PSPACE, and co-NP; hard and complete problems. Pseudo-polynomial time algorithms. Advanced data structures. Graph-theoretic, number-theoretic, probabilistic, and approximation algorithms.
Requisites: Prerequisites, COMP 455 and 550.
Grading status: Letter grade.

COMP 752. Mechanized Mathematical Inference. 3 Credits.
Propositional calculus. Semantic tableaux. Davis-Putnam algorithm. Natural deduction. First-order logic. Completeness. Resolution. Problem representation. Abstraction. Equational systems and term rewriting. Specialized decision procedures. Nonresolution methods.
Requisites: Prerequisite, COMP 825.
Grading status: Letter grade.

COMP 755. Machine Learning. 3 Credits.
Machine Learning methods are aimed at developing systems that learn from data. The course covers data representations suitable for learning, mathematical underpinnings of the learning methods and practical considerations in their implementations.
Requisites: Prerequisite, COMP 410 and MATH 233.
Grading status: Letter grade.

COMP 761. Introductory Computer Graphics. 1 Credit.
A computer graphics module course with one credit hour of specific COMP 665 content.
Grading status: Letter grade.

COMP 763. Semantics and Program Correctness. 3 Credits.
Formal characterization of programs. Denotational semantics and fixed-point theories. Proof of program correctness and termination. Algebraic theories of abstract data types. Selected topics in the formalization of concurrent computation.
Requisites: Prerequisite, COMP 724.
Grading status: Letter grade.

COMP 764. Monte Carlo Method. 3 Credits.
Relevant probability and statistics. General history. Variance reduction for sums and integrals. Solving linear and nonlinear equations. Random, pseudorandom generators; random trees. Sequential methods. Applications.
Requisites: Prerequisites, COMP 110, MATH 233, 418, and STOR 435; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

COMP 766. Visual Solid Shape. 3 Credits.
3D differential geometry; local and global shape properties; visual aspects of surface shape. Taught largely through models and figures. Applicable to graphics, computer vision, human vision, and biology.
Requisites: Prerequisites, MATH 233.
Grading status: Letter grade.

COMP 767. Geometric and Solid Modeling. 3 Credits.
Curve and surface representations. Solid models. Constructive solid geometry and boundary representations. Robust and error-free geometric computations. Modeling with algebraic constraints. Applications to graphics, vision, and robotics.
Requisites: Prerequisites, COMP 575 or 770, and MATH 661.
Grading status: Letter grade.

COMP 768. Physically Based Modeling and Simulation. 3 Credits.
Geometric algorithms, computational methods, simulation techniques for modeling based on mechanics and its applications.
Requisites: Prerequisite, COMP 665; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMP 770. Computer Graphics. 3 Credits.
Study of graphics hardware, software, and applications. Data structures, graphics, languages, curve surface and solid representations, mapping, ray tracing and radiosity.
Requisites: Prerequisites, COMP 665 and 761.
Grading status: Letter grade.

COMP 775. Image Processing and Analysis. 3 Credits.
Approaches to analysis of digital images. Scale geometry, statistical pattern recognition, optimization. Segmentation, registration, shape analysis. Applications, software tools.
Requisites: Prerequisites, COMP 665, MATH 547, and STOR 435.
Grading status: Letter grade
Same as: BMME 775.

COMP 776. Computer Vision in our 3D World. 3 Credits.
Fundamental problems of computer vision. Projective geometry. Camera models, camera calibration. Shape from stereo, epipolar geometry. Photometric stereo. Optical flow, tracking, motion. Range finders, structured light. Object recognition.
Requisites: Prerequisites, MATH 566, COMP 550, 665, and 775; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

COMP 777. Optimal Estimation in Image Analysis. 3 Credits.
Formulation and numerical solution of optimization problems in image analysis.
Requisites: Prerequisite, MATH 233, MATH 547, and MATH 535 or STOR 435.
Grading status: Letter grade.

COMP 781. Robotics. 3 Credits.
Introduction to the design, programming, and control of robotic systems. Topics include kinematics, dynamics, sensing, actuation, control, robot learning, tele-operation, and motion planning. Applications will be discussed including industrial, mobile, assistive, personal, and medical robots.
Requisites: Prerequisites, COMP 550 and MATH 547; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

COMP 782. Motion Planning in Physical and Virtual Worlds. 3 Credits.
Topics include path planning for autonomous agents, sensor-based planning, localization and mapping, navigation, learning from demonstration, motion planning with dynamic constraints, and planning motion of deformable bodies. Applications to robots and characters in physical and virtual worlds will be discussed.
Requisites: Prerequisite, COMP 550; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMP 787. Visual Perception. 3 Credits.
Surveys form, motion, depth, scale, color, brightness, texture and shape perception. Includes computational modeling of vision, experimental methods in visual psychophysics and neurobiology, recent research and open questions.
Requisites: Prerequisites, COMP 665.
Grading status: Letter grade.

COMP 788. Expert Systems. 3 Credits.
Languages for knowledge engineering. Rules, semantic nets, and frames. Knowledge acquisition. Default logics. Uncertainties. Neural networks.
Requisites: Prerequisite, COMP 750.
Grading status: Letter grade.

COMP 790. Topics in Computer Science. 1-21 Credits.
Permission of the instructor. This course has variable content and may be taken multiple times for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

COMP 822. Topics in Discrete Optimization. 3 Credits.
Topics may include polynomial algorithms, computational complexity, matching and matroid problems, and the traveling salesman problem.
Requisites: Prerequisite, STOR 712; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: STOR 822.

COMP 824. Functional Programming. 3 Credits.
Programming with functional or applicative languages. Lambda calculus; combinators; higher-order functions; infinite objects. Least fixed points, semantics, evaluation orders. Sequential and parallel execution models.
Requisites: Prerequisite, COMP 524.
Grading status: Letter grade.

COMP 825. Logic Programming. 3 Credits.
Propositional calculus, Horn clauses, first-order logic, resolution. Prolog: operational semantics, relationship to resolution, denotational semantics, and non-logical features. Programming and applications. Selected advanced topics.
Requisites: Prerequisite, COMP 524.
Grading status: Letter grade.

COMP 831. Internet Architecture and Performance. 3 Credits.
Internet structure and architecture; traffic characterization and analysis; errors and error recovery; congestion and congestion control; services and their implementations; unicast and multicast routing.
Requisites: Prerequisite, COMP 431; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

COMP 832. Multimedia Networking. 3 Credits.
Audio/video coding and compression techniques and standards. Media streaming and adaptation. Multicast routing, congestion, and error control. Internet protocols RSVP, RTP/RTCP. Integrated and differentiated services architecture for the Internet.
Requisites: Prerequisites, COMP 431 and 530.
Grading status: Letter grade.

COMP 841. Advanced Computer Architecture. 3 Credits.
Concepts and evolution of computer architecture, machine language syntax and semantics; data representation; naming and addressing; arithmetic; control structures; concurrency; input-output systems and devices. Milestone architectures.
Requisites: Prerequisite, COMP 740.
Grading status: Letter grade.

COMP 842. Advanced Computer Implementation. 3 Credits.
Required preparation, knowledge of digital logic techniques. The application of digital logic to the design of computer hardware. Storage and switching technologies. Mechanisms for addressing, arithmetic, logic, input/output and storage. Microprogrammed and hardwired control.
Requisites: Prerequisite, COMP 740.
Grading status: Letter grade.

COMP 844. Advanced Design of VLSI Systems. 3 Credits.
Advanced topics in the design of digital MOS systems. Students design, implement, and test a large custom integrated circuit. Projects emphasize the use of advanced computer-aided design tools.
Requisites: Prerequisite, COMP 744.
Grading status: Letter grade.

COMP 850. Advanced Analysis of Algorithms. 3 Credits.
Design and analysis of computer algorithms. Time and space complexity; absolute and asymptotic optimality. Algorithms for searching, sorting, sets, graphs, and pattern-matching. NP-complete problems and provably intractable problems.
Requisites: Prerequisite, COMP 750.
Grading status: Letter grade.

COMP 870. Advanced Image Synthesis. 3 Credits.
Advanced topics in rendering, including global illumination, surface models, shadings, graphics hardware, image-based rendering, and antialiasing techniques. Topics from the current research literature.
Requisites: Prerequisite, COMP 770.
Grading status: Letter grade.

COMP 872. Exploring Virtual Worlds. 3 Credits.
Project course, lecture, and seminar on real-time interactive 3D graphics systems in which the user is 'immersed' in and interacts with a simulated 3D environment. Hardware, modeling, applications, multi-user systems.
Requisites: Prerequisite, COMP 870.
Grading status: Letter grade.

COMP 875. Recent Advances in Image Analysis. 3 Credits.
Lecture and seminar on recent advances in image segmentation, registration, pattern recognition, display, restoration, and enhancement.
Requisites: Prerequisite, COMP 775.
Grading status: Letter grade.

COMP 892. Practicum. 0.5 Credits.
Permission of the instructor. Work experience in an area of computer science relevant to the student's research interests and pre-approved by the instructor. The grade, pass or fail only, will depend on a written report by the student and on a written evaluation by the employer.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

COMP 910. Computer Science Module. 0.5-21 Credits.
A variable-credit module course that can be used to configure a registration for a portion of a class.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

COMP 911. Professional Writing in Computer Science. 3 Credits.
Graduate computer science majors only. Analysis of good and bad writing. Exercises in organization and composition. Each student also writes a thesis-quality short technical report on a previously approved project.
Grading status: Letter grade.

COMP 915. Technical Communication in Computer Science. 1 Credit.
Graduate computer science majors or permission of the instructor. Seminar on teaching, short oral presentations, and writing in computer science.
Grading status: Letter grade.

COMP 916. Seminar in Professional Practice. 1 Credit.
Required preparation, satisfaction of M.S. computer science program product requirement. The role and responsibilities of the computer scientist in a corporate environment, as an entrepreneur, and as a consultant. Professional ethics.
Grading status: Letter grade.

COMP 917. Seminar in Research. 1 Credit.
Graduate computer science majors only. The purposes, strategies, and techniques for conducting research in computer science and related disciplines.
Grading status: Letter grade.

COMP 918. Research Administration for Scientists. 3 Credits.
Graduate standing required. Introduction to grantsmanship, research grants and contracts, intellectual property, technology transfer, conflict of interest policies. Course project: grant application in NSF FastLane.
Grading status: Letter grade.

COMP 980. Computers and Society. 1 Credit.
Graduate computer science majors only. Seminar on social and economic effects of computers on such matters as privacy, employment, power shifts, rigidity, dehumanization, dependence, quality of life.
Grading status: Letter grade.

COMP 990. Research Seminar in Computer Science. 1-21 Credits.
Permission of the instructor. Seminars in various topics offered by members of the faculty.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

COMP 991. Reading and Research. 1-21 Credits.
Permission of the instructor. Directed reading and research in selected advanced topics.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

COMP 992. Master's (Non-Thesis). 3 Credits.
Permission of the department.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.

COMP 993. Master's Research and Thesis. 3 Credits.
Permission of the department.
Repeat rules: May be repeated for credit.

COMP 994. Doctoral Research and Dissertation. 3 Credits.
Permission of the department.
Repeat rules: May be repeated for credit.

UNC ADAMS SCHOOL OF DENTISTRY (GRAD)

Contact Information

UNC Adams School of Dentistry
Visit Program Website (http://www.dentistry.unc.edu)

Scott S. De Rossi, Dean and Professor

Graduate instruction in the UNC Adams School of Dentistry is offered in dental hygiene education, endodontics, operative dentistry and biomaterials, oral epidemiology, oral and maxillofacial pathology, oral and maxillofacial radiology, oral and maxillofacial surgery, orthodontics, pediatric dentistry, periodontology, and prosthodontics, as well as in oral and craniofacial biomedicine.

The specialty practice programs — endodontics, operative dentistry and biomaterials, oral and maxillofacial pathology, oral and maxillofacial radiology, orthodontics, pediatric dentistry, periodontology, and prosthodontics — are dual-specialty certificate and master of science degree programs. The minimum requirements for the certificate are prescribed by the Commission on Dental Accreditation of the American Dental Association (CODA) and the respective specialty boards for the approved CODA specialties. The master of science degree is conferred by the University of North Carolina at Chapel Hill Graduate School and requires the successful completion of required coursework, oral and written comprehensive examinations, a research project, and a thesis. Graduates who possess an appropriate degree and who meet the requirements of The Graduate School are considered for admission. Enrollment for study in these specialty programs requires approximately three years of residency. The curricula have been designed to permit maximum flexibility in preparation for practice, teaching, and/or research, as well as to meet the educational requirements of the specialty boards.

Other advanced education programs available within the UNC Adams School of Dentistry include dental hygiene education, oral and craniofacial biomedicine, oral epidemiology, and oral and maxillofacial surgery. The oral and craniofacial biomedicine and oral epidemiology programs lead to the doctoral degree (Ph.D.) and require four or more years to complete. The dental hygiene education program spans two years and is a master of science program designed to prepare dental hygienists for teaching, research, or corporate employment. The oral and maxillofacial surgery program is a six-year dual-degree (M.D.) program with a certificate in oral and maxillofacial surgery.

Information regarding admission, entrance requirements, and/or curricula of a specific advanced education program may be obtained online (https://www.dentistry.unc.edu/academicprograms/ade).

Tuition and Fees

Tuition and fees for Graduate School programs are subject to change at any meeting of the University of North Carolina at Chapel Hill Board of Trustees, and an increase should be anticipated each year. Tuition and fees apply for all years of study and training. Current tuition and fees for in-state and nonresidents may be obtained online (http://cashier.unc.edu/tuition-fees). Required instruments, books, computers, and laboratory fees are determined by each program. Tuition and fees are due at the time of registration.

Student loans are available on the same basis as for undergraduates. Additional information can be obtained online (http://studentaid.unc.edu/types-of-aid/loans).

Oral and Craniofacial Biomedicine

Oral and craniofacial biomedicine is a highly translational, multidisciplinary program of study that focuses on the growth, development, and pathologies of the craniofacial complex and associated physiological structures, as well as the study of disease and healing mechanisms related to these structures.

The discipline of oral and craniofacial biomedicine applies and extends the concepts of immunology, embryology, physiology, cellular and molecular biology, neurobiology, pharmacology, microbiology, and biochemistry to understanding the growth and development and pathologies associated with the craniofacial complex and oral cavity. Expertise and authority in the particular concepts of host-pathogen interactions, neurobiology, skeletal biology and extracellular matrices, and cancer are well represented within the program and training qualifications of program faculty located in numerous UNC–Chapel Hill programs and departments, including the UNC Adams School of Dentistry, School of Medicine, Lineberger Comprehensive Cancer Center, the Neurosciences Center, the Center for Cystic Fibrosis, and the Center for AIDS Research.

Attention in dental research and practice is now focusing on the dynamics of oral disease and prevention and treatment at the earliest stages of development, including research on risk factors for disease as well as the cellular and molecular events in disease pathogenesis. Molecular approaches for oral disease analysis and the complexity of disease elements require advanced training in the discipline of oral and craniofacial biomedicine. Modern biomedical research is also identifying systemic relationships between oral conditions, health status, and diseases such as atherosclerosis, HIV, and cancer. The oral cavity also offers an ideal model to study biological structures and cellular mechanisms important throughout the body and important in immune response.

Curricular requirements are based on training areas, with common core requirements for all students. Research interests and qualifications will also determine course requirements. Research is a key element of the program, and students start laboratory rotations during their first semester to allow maximum time for research involvement.

For additional information, consult the UNC Adams School of Dentistry's Web site (http://www.dentistry.unc.edu) or write to the Graduate Program Manager, Oral and Craniofacial Biomedicine Ph.D. Program, UNC Adams School of Dentistry, 3110 First Dental Building, The University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-7455. Telephone: (919) 537-3230; Fax: (919) 966-3683.

Dual Clinical Specialty / Ph.D. Degree Program in Oral and Craniofacial Biomedicine

There is an opportunity for students who have an interest in pursuing a Ph.D. degree in oral and craniofacial biomedicine with The Graduate School to simultaneously pursue a clinical specialty certificate in one of the ADA-recognized specialty programs in the Adams School of Dentistry. This special program is a five-/six-year program that allows the pursuit of the Ph.D. and clinical certificate simultaneously, and results in awarding

of both the Ph.D. and the clinical specialty certificate upon completion of the requirements for both programs.

Applying for this dual program is an option when applying for either the oral and craniofacial biomedicine graduate program or a clinical specialty program in the Adams School of Dentistry. The applicant must indicate an interest in pursuing the dual program at the time of application to the clinical specialty program. Students applying for the dual program must take either the Graduate Record Examination (GRE) OR the Dental Aptitude Test (DAT), but are not required to take both exams.

Students accepted into the dual program will follow a specialized curriculum, which combines scientific and clinical training with research activities designed to promote a career in academic dentistry. Students who successfully complete the program will then be awarded both the Ph.D. and the clinical specialty certificate at the completion of the requirements for both programs.

Research Facilities

The oral and craniofacial biomedicine graduate program is located in the UNC Adams School of Dentistry. The central base for much of the basic science research in the curriculum is in the Koury Oral Health Sciences Building, with its access to SEM/TEM microscopy, tissue culture facilities, anaerobic microbiology support, ALAC-accredited animal facilities, computers and software for image analyses/enhancement and finite element analyses, and a clinical research unit that includes an eight-patient operatory. Biostatistical assistance is readily available as well as medical illustration, photography, radiology, and grants management.

Financial Aid

Graduate research assistantships are awarded competitively for students accepted into the oral and craniofacial biomedicine Ph.D. program. These competitive assistantships with health insurance provide support through program resources during the first year and may include a special tuition rate for out-of-state students. Support for dissertation research, beginning in the student's second year, is generally made available by faculty mentors. Students are eligible for financial aid through the UNC Office of Scholarships and Student Aid. International students are encouraged to contact International Student and Scholar Services for resource contacts if financial aid is needed.

Oral Epidemiology

The University of North Carolina at Chapel Hill offers a program leading to a Ph.D. degree in epidemiology under the cooperative auspices of the Adams School of Dentistry's Department of Dental Ecology and the Gillings School of Global Public Health's Department of Epidemiology and Department of Health Policy and Management. The strong, nationally recognized Department of Epidemiology at the Gillings School of Global Public Health has a well-established doctoral program, and oral epidemiology has been taught as part of the program in dental public health for many years. The integration of the wealth of resources in these three departments makes this program unique.

The goal of the oral epidemiology program is to teach students to identify, analyze, and predict changes in oral diseases and conditions. These conditions include dental caries, oral cancer, oral mucosal lesions, periodontal diseases, craniofacial and dentofacial anomalies, and systemic diseases that affect and are affected by oral health. Degree recipients have the academic foundation, advanced knowledge, and skills needed to conduct, interpret, and evaluate sophisticated epidemiologic investigations and clinical research projects.

Information, including advice regarding applying, can be found at the program's Web site (http://www.sph.unc.edu/epid).

Endodontics

The Department of Endodontics offers a three-year program leading to a certificate in endodontics and a master of science degree. The program is designed to prepare candidates for careers in academics, research, or the clinical practice of endodontics, and for certification by the American Board of Endodontics.

The endodontics graduate program involves an integrated study of biological sciences as they pertain to endodontics, development of the clinical skills required in the broad area of the endodontic specialty, review of classic and current literature in endodontics, teaching experience, research design and methodology, and the development and completion of a research project.

Oral and Maxillofacial Pathology

The oral and maxillofacial pathology program is a three-year program that awards a certificate in oral and maxillofacial pathology and a master of science degree. The program prepares qualified oral and maxillofacial pathology specialists for positions of responsibility in institutions of higher dental education or research or in private practice. Students develop competence in surgical oral pathology, acquire skills in the clinical management of patients with disorders of the head and neck, gain experience in pathology laboratory management, and develop teaching and research skills for enhancement of an academic career. Upon completion of the necessary requirements each student is eligible for fellowship in the American Academy of Oral and Maxillofacial Pathology and certification by the American Board of Oral and Maxillofacial Pathology.

Oral and Maxillofacial Radiology

The oral and maxillofacial radiology program is a three-year program that awards a certificate in oral and maxillofacial radiology and a master of science degree. The primary goal of the program is to prepare specialists to practice clinical oral and maxillofacial radiology; to provide patient care, teach, and conduct research in an oral health care institution; or to provide patient care in the private practice setting.

The program includes training in radiological sciences (radiological physics, radiation biology, radiation protection, imaging science), clinical sciences (intraoral, extraoral, and cone beam CT imaging; radiographic interpretation of conditions affecting the oral and maxillofacial region), medical sciences (oral and maxillofacial pathology, head and neck anatomy), and research sciences (research design and biostatistics). Each graduate student develops an original research project as an integral part of the graduate program, resulting in a written thesis. The program meets the eligibility requirements of the American Board of Oral and Maxillofacial Radiology.

Operative Dentistry and Biomaterials

The Department of Operative Dentistry and Biomaterials offers a three-year program that awards certificate in operative dentistry and a master of science degree granted by The Graduate School. The primary goal of the program is to prepare graduates for careers in dental education and research. The program involves component areas of research, teaching, and patient care. The curriculum includes general core courses, including topics in basic and clinical sciences; a research component, including courses on research design and statistical methods; a clinical component

in contemporary operative dentistry; and experiences in preclinical and clinical teaching.

A formal thesis based on a selected research topic is required, including its defense before an examining committee. The department also requires a comprehensive written examination.

Orthodontics

The orthodontic postgraduate program at the UNC Adams School of Dentistry provides a combination of clinical experience in orthodontics and critical thinking and research experience, which leads to a certificate in orthodontics and a master of science degree conferred by The Graduate School. Students in the advanced orthodontic education program are required to demonstrate clinical and professional proficiency as well as to complete the didactic and research components of the M.S. degree prior to graduating. During the program's first year students participate in core courses, attend didactic and clinical seminars, and begin patient care. As the program progresses, didactic seminars gradually yield to research participation, while clinical seminars continue, and the volume of patient care increases. All students must perform satisfactorily on oral and written comprehensive examinations to complete the program successfully.

The orthodontics program offers a 33-month curriculum. Six residents are admitted to begin the program each August. By the second or third year of the program, students are educationally qualified to take the written portion of the American Board of Orthodontics. Successful completion of a research project is required to earn a certificate in orthodontics as well as an M.S. degree.

Pediatric Dentistry

The department offers a graduate program in pediatric dentistry leading to a clinical certificate in pediatric dentistry and an M.S., M.P.H., or Ph.D. degree awarded by The Graduate School. The minimum program length is 36 months, beginning on July 1 of each year. The program's goal is to prepare the student for a career in academic research, dental education, clinical practice, or public health. Emphasis is placed on developing leadership skills and training advocates for children's health. For interested students, this program can be combined with other educational programs in the social sciences, basic sciences, or allied health professions that lead to an additional master's degree, postdoctoral fellowship, or a doctoral degree.

During the first year each student completes courses in research design and statistics; a protocol for the research project is completed in conjunction with the coursework. This project develops a student's skill set in the scientific method and scientific writing. During the second year data are collected, and during the third year the thesis is written and defended. Under the direction of leaders in many fields, research opportunities are available in a range of topics and can be undertaken in the UNC Adams School of Dentistry, at a facility in nearby Research Triangle Park, or at any of several neighboring institutions of higher learning. Numerous projects have received national acclaim and garnered publication in dental literature. Hospital training is conducted through the University of North Carolina Health Care System. Graduate students are active members of the program's teaching team during all years. Development of leadership skills in the health profession is supported by externships at the local, state, and national levels.

Periodontology

The periodontology program is designed to prepare dentists to enter the clinical practice of periodontics or to work in academics and research. The program consists of a 36-month course of study leading to a certificate in periodontics and a master of science degree conferred by The Graduate School. Alternative degree programs include a master of public health and a Ph.D. in oral and craniofacial biomedicine. The curriculum is devoted to the study of biological concepts and literature that encompass the prevention, diagnosis, and treatment of diseases of the supporting and surrounding tissues of the teeth or their substitutes, and the maintenance of the health, function, and esthetics of these structures and tissues. Clinical acquisition of skills in periodontology and implantology is a primary focus of the program. Resident experiences include patient care, teaching, and research. Elective courses relating to areas of research interests are available.

Prosthodontics

The prosthodontics program is a 36-month course of study in fixed and removable prosthodontics, dental implant prosthodontics, and maxillofacial prosthetics, leading to a certificate in prosthodontics and a master of science degree conferred by The Graduate School. The primary goals of the program are to prepare a student for clinical practice and/or a teaching and research career. The curriculum offers a broad educational experience in clinical, research, didactic, and teaching activities. The program satisfies the formal training requirements for certification by the American Board of Prosthodontics.

A number of graduate courses from allied clinical and biomedical disciplines are available as electives for prosthodontic graduate students. Though not required, elective courses are encouraged. Potential electives (within or outside the Adams School of Dentistry) should be discussed with the program director so that the core curriculum can be adjusted to accommodate the student's needs.

Dental Hygiene Education

The primary objective of the dental hygiene education program is to prepare well-qualified educators to be instructors in dental hygiene academic programs. Upon the successful completion of this program, the student should have

1. Acquired advanced knowledge and skills in one of the following minors: dental management/administration, biological sciences, oral pathology, or clinical education
2. Developed the knowledge, skills, and attitudes necessary in the conduct of dental hygiene programs
3. Acquired the ability to teach courses in more than one dental hygiene field, and
4. Defined their own problems from the present body of knowledge in dental and dental hygiene education, solved those problems, and presented their work in a scholarly fashion

Course requirements vary and are based on the individual background of the student and on the minor selected by the student. Available minors include clinical education, management/administration/biological sciences, and oral pathology. Thirty-six credit hours are required for the master of science degree. The length of the program is approximately two years.

Admissions

Oral and Craniofacial Biomedicine

There are two pathways for admission to the Curriculum in Oral Biology:

1. Direct application to oral and craniofacial biomedicine
   Individuals (domestic or international) with a doctoral or biomedical professional degree, including D.D.S., D.M.D., M.D. or equivalent, should apply directly to the program through The Graduate School's admissions Web site (http://gradschool.unc.edu/admissions).
2. Application through the Biological and Biomedical Sciences Program
   Individuals (domestic or international) *without* an advanced professional biomedical degree must apply through the Biological and Biomedical Sciences Program (BBSP (http://bbsp.unc.edu)).

Endodontics

Application to the endodontics program requires submission of the required transcripts and documentation to the Postdoctoral Application Support Service (PASS). Application deadlines to PASS for the following year's class can be found on the PASS Web site (http://www.adea.org/PASSapp). A personal interview is required for admission. After review by the program, successful applicants will be recommended to The Graduate School. Admission to The Graduate School is granted only after the department reviews and approves the application, transcripts, or prior academic work, letters of reference, and other credentials. The number of admitted students is limited to three each year. Stipends are available, depending upon available resources.

Oral and Maxillofacial Pathology

Applications for admission to the program should be submitted online through the Graduate School's admissions Web site (https://gradschool.unc.edu/admissions). As part of the Graduate School application, applicants must upload a curriculum vitae, three letters of recommendation, and a statement of purpose which outlines motivations, experience and professional goals. National Dental Board Scores should be uploaded as a Supplement document if available. Applicants must also upload unofficial transcripts. Official transcripts should not be sent to the department or the Graduate School until requested to do so. Applicants must possess a D.D.S., D.M.D., or equivalent degree. Stipends are available, depending upon available resources.

Oral and Maxillofacial Radiology

Applications for admission to the program should be submitted online through the Graduate School's admissions Web site (https://gradschool.unc.edu/admissions). As part of the Graduate School application, applicants must upload a curriculum vitae, three letters of recommendation, and a statement of purpose which outlines motivations, experience and professional goals. National Dental Board Scores should be uploaded as a Supplement document if available. Applicants must also upload unofficial transcripts. Official transcripts should not be sent to the department or the Graduate School until requested to do so. Applicants must possess a D.D.S., D.M.D., or equivalent degree. Stipends are available, depending upon available resources.

Operative Dentistry and Biomaterials

Application to the operative dentistry and biomaterials program requires submission of the required transcripts and documentation to the Postdoctoral Application Support Service (PASS). Application deadlines to PASS for the following year's class can be found on the PASS Web site (http://www.adea.org/PASSapp). A personal interview is required for admission. After review by the program, successful applicants will be recommended to The Graduate School. Applications for admission to the program should be submitted online through the Graduate School's admissions Web site (https://gradschool.unc.edu/admissions). Admission to The Graduate School is granted only after the department reviews and approves the application, transcripts, or prior academic work, letters of reference, and other credentials. The number of admitted students is limited to three each year. Stipends are available, depending upon available resources.

Orthodontics

Application to the orthodontics program requires submission of the required transcripts and documentation to the Postdoctoral Application Support Service (PASS). Application deadlines to PASS for the following summer class are available on the PASS Web site (http://www.adea.org/PASSapp). All candidates must register with the Postdoctoral Dental Matching Program (http://www.natmatch.com/dentres). A personal, on-site interview is required for admission, and interviews are made by invitation of the program after its review of applications. Interviews are usually held in late October or early November. Once a student has been accepted through the Matching Program, the student must apply to The Graduate School to complete the requisite courses to earn a master's degree. Applications for admission to The Graduate School must be submitted online through The Graduate School's admissions Web site (http://gradschool.unc.edu/admissions). Stipends are available, depending upon available resources.

Pediatric Dentistry

The pediatric dentistry program requires application through both the centralized application and matching services: Submission of the required transcripts and documentation is made to the Postdoctoral Application Support Service (PASS). Application deadlines to PASS for the following summer class are available on the PASS Web site (http://www.adea.org/PASSapp). All candidates must register with the Postdoctoral Dental Matching Program (http://www.natmatch.com/dentres). A personal interview is required, and interviews are made by invitation of the department after applications have been reviewed. Once a student has been accepted through the Match Program, the student must apply to The Graduate School. Applications for admission to The Graduate School must be submitted online through The Graduate School's admissions Web site (http://gradschool.unc.edu/admissions). Stipends are available, depending upon available resources.

Periodontology

All applications for the periodontology program, as well as transcripts and letters of reference, should be submitted through the Postdoctoral Application Support Service (PASS). Application deadlines to PASS for the following summer cohort are available on the PASS Web site (http://www.adea.org/PASSapp). All candidates must register with the Postdoctoral Dental Matching program (http://www.natmatch.com/dentres). A personal interview is required for admission. Once a student has been accepted through the Match program, applicants will be informed of their eligibility to apply to The Graduate School. Admission to The Graduate School is granted only after the department reviews and approves the application, transcripts of prior academic work, letters of reference, and other credentials. Applications for admission to The Graduate School must be submitted online through The Graduate School's admissions Web site (http://gradschool.unc.edu/admissions). The number of students is limited to three each year. Stipends are available, depending upon available resources.

Prosthodontics

All applications for the prosthodontics program, as well as transcripts and letters of reference, should be submitted through the Postdoctoral Application Support Service (PASS). Application deadlines to PASS for the following summer cohort are available on the PASS Web site (http://www.adea.org/PASSapp). All candidates must register with the Postdoctoral Dental Matching program (http://www.natmatch.com/dentres). A personal interview is required for admission. Once a student has been accepted through the Match program, the admission policy for the master of science in prosthodontics program follows the regular requirements for admission to The Graduate School. Admission to The Graduate School is granted only after the application, transcript of prior academic work, letters of reference, and other credentials are reviewed and approved by the program's admissions committee. Applications for admission to The Graduate School must be submitted online through the Graduate School's admissions Web site (http://gradschool.unc.edu/admissions). Stipends are available, depending upon available resources.

Dental Hygiene Education

Minimum admissions requirements for the program in dental hygiene education include current licensure, a bachelor's degree from an accredited institution, and graduation from a dental hygiene program accredited by the Commission on Dental Accreditation of the American Dental Association. Exceptions to this requirement include graduation from an international bachelor of science program in dental hygiene, where CODA accreditation is not possible. Previous work experience in dental hygiene education or dental hygiene practice is strongly recommended.

Applicants must have a grade point average of B or better in the professional undergraduate curriculum. Three letters of recommendation are required, as well as an admissions questionnaire by the applicant. The course of study begins in August of each year. Applications for admission to The Graduate School must be submitted online through The Graduate School's admissions Web site (http://gradschool.unc.edu/admissions). Stipends are available, depending upon available resources.

Professors

Roland R. Arnold, Immunology, Host-Microbial Biology
James D. Beck, Oral Epidemiology
Terry Donovan, Restorative Sciences
Eric Everett, Oral and Craniofacial Health Sciences, Pediatric Dentistry
Ashraf Fouad, Endodontics
H. Garland Hershey, Orthodontics
Ching-Chang Ko, Orthodontics
Jessica Lee, Pediatric Dentistry
Valerie Murrah, Oral Carcinogenesis, Salivary Gland Malignancies
Lauren Patton, Oral Medicine, Dental Ecology
Ceib Phillips, Associate Dean for Advanced Education/Graduate Programs, Oral and Craniofacial Health Sciences
Luis Pimenta, Dental Ecology
Rocio Quinonez, Pediatric Dentistry
Andre Ritter, Executive Dean, Restorative Sciences
Sigurdur Saemundsson, Pediatric Dentistry
Gary Slade, Oral Epidemiology
Ronald P. Strauss, Medical Sociology and Health Promotion/Disease Prevention
Cristiano Susin, Periodontology
Edward J. Swift, Vice Dean for Education, Restorative Sciences
Timothy Turvey, Oral and Maxillofacial Surgery
Donald A. Tyndall, Diagnostic Sciences
Jennifer Webster-Cyriaque, Oral Medicine, Dental Ecology
Jane Weintraub, Dental Ecology
Rebecca Wilder, Dental Hygiene, Periodontology
J. Tim Wright, Pediatric Dentistry
Mitsuo Yamauchi, Oral and Craniofacial Health Sciences
David Zajac, Craniofacial Disorders

Associate Professors

Eric Bair, Oral and Craniofacial Health Sciences
Silvana Barros, Periodontology
Adalberto Bastos De Vasconcellos, Restorative Sciences
George H. Blakey, Oral and Maxillofacial Surgery
Lee Boushell, Restorative Sciences
Jennifer Brame, Dental Ecology, Periodontology
Angela Broome, Diagnostic Sciences
Ryan Cook, Restorative Sciences
Alice Curran, Diagnostic Sciences
Apoena De Aguiar Ribeiro, Diagnostic Sciences
Ingeborg DeKok, Restorative Sciences
Kimon Divaris, Pediatric Dentistry
Ibrahim Duqum, Restorative Sciences
Richard Eidson, Restorative Sciences
Sylvia Frazier-Bowers, Orthodontics
Susan Hadler, Diagnostic Sciences
Carol Haggerty, Diagnostic Sciences
Glen Karunanayake, Endodontics
Lorne D. Koroluk, Pediatric Dentistry, Orthodontics
Mark Kutcher, Oral Medicine
Lewis Lampiris, Dental Ecology, DISC
Pei Feng Lim, Orofacial Pain, Endodontics
Nigel Shaun Matthews, Oral and Maxillofacial Surgery
Michael Milano, Pediatric Dentistry
Shannon Mitchell, Dental Ecology, Periodontology
Andre Mol, Diagnostic Sciences
Antonio Moretti, Periodontology
Tung Nguyen, Orthodontics
Ricardo Padilla, Diagnostic Sciences
Mary T. Pettiette, Endodontics
Glenn Reside, Oral and Maxillofacial Surgery
Anne Sanders, Dental Ecology
Allen Samuelson, Dental Ecology
Lisa Stoner, Associate Dean Clinical Affairs, Restorative Sciences
Ricardo Walter, Restorative Sciences
Darryn Weinstein, Pediatric Dentistry

Assistant Professors

Sumitha Ahmed, Restorative Sciences
Antonio Amelio, Oral and Craniofacial Health Sciences
Li Chen, Dental Ecology, Periodontology
Wendy Clark, Restorative Sciences
Renie Daniel, Oral and Maxillofacial Surgery
Massimiliano Di Giosia, Endodontics
Christine Downey, Dental Ecology
Glenn Garland, Restorative Sciences
Jennifer Harmon, Dental Ecology, Periodontology
Tate Jackson, Orthodontics
Brandon Johnson, Diagnostic Sciences
Jean Kontos Ginnis, Pediatric Dentistry
Elizabeth Kornegay, Dental Ecology, Periodontology
Kevin Lim, Restorative Sciences
Julie Marchesan, Periodontology

Beau Meyer, Pediatric Dentistry
Patricia Miguez, Restorative Sciences
Mauro Forgearini Nunes, Restorative Sciences
Gustavo Oliveira, Restorative Sciences
Jonathan Reside, Periodontology
Carolina Vera Resendiz, Restorative Sciences
Lattice D. Sams, Dental Hygiene, Periodontology
Rishma Shah, Orthodontics
Lynn Smith, Dental Ecology
Taiseer Sulaiman, Restorative Sciences
Lida Swann, Restorative Sciences
Peter Tawil, Endodontics
Inna Tchivileva, Oral and Craniofacial Health Sciences
Tiffanie White, Dental Hygiene, Periodontology
Michael Wolcott, Oral and Craniofacial Health Sciences
Di Wu, Oral and Craniofacial Health Sciences
Alexandra B. Yarborough, Restorative Sciences

Information Relevant to the UNC Adams School of Dentistry Experience

Immunization Requirements

The State of North Carolina immunization requirements and the UNC Adams School of Dentistry immunization requirements for dental assisting, dental hygiene, and doctor of dental surgery students are listed below. Documentation of all is required with application.

State Requirements

- Three DTP (diphtheria, tetanus, pertussis), Td (tetanus, diphtheria), or Tdap (tetanus, diphtheria, pertussis) doses. (This fulfills the primary series requirement.)
  - One Tdap booster after completion of the primary series that did not include a Tdap, and then a Td vaccine every 10 years thereafter.
- Three polio (unless greater than 18 years of age).
- Two measles (rubeola), two mumps, one rubella (two MMR doses meet this requirement) or positive titers.
- Hepatitis B series (not required for individuals born before July 1, 1994). ***See school requirements below.***

UNC Adams School of Dentistry Requirements

- Varicella vaccination series (two shots) or a positive titer.
- Hepatitis B vaccination series (three shots) and a positive hepatitis B antibody (HBsAb) quantitative titer. (Please make sure your physician does not order a qualitative titer.) Ideally, a titer is recommended one to two months after completion of the series for proof of immunity to hepatitis B but can be checked at a later date.
- Two-step tuberculosis skin test (TST) or a TB blood test (IGRA). DDS and DH students report to Campus Health and follow the testing procedures required. Advanced Dental Education students report to Employee Health and follow the testing procedures required.

Entering students must present a certificate of immunization from a physician or local health department prior to matriculation.

The matriculating student is required to submit a certificate of immunizations to UNC Campus Health Services (CHS) by a published and specified date. Through ConnectCarolina, CHS will notify students who are not in compliance with the state immunization requirements noted above. Individuals who have not met the state immunization requirements after 30 calendar days from the first date of attendance will be administratively withdrawn from the University by the University Registrar. See the UNC Campus Health Web site (http://campushealth.unc.edu/services/immunizations/health-science-students-immunizations).

Students with deficiencies in the additional immunization requirements of the school will be notified of the deficiencies by the UNC schools director of clinical compliance. The school will work with students to meet these additional requirements. The failure to comply with the school's requirements after consultation with the director of clinical compliance and the agreed-upon resolution schedule will result in administrative withdrawal from the school.

Additional Requirements

Annually:

- Influenza vaccine not earlier than September 1.
- Tuberculosis screening.
- Verification of health insurance. The University of North Carolina at Chapel Hill requires all eligible students to have health insurance (See the UNC Campus Health Student Health Insurance Web site (http://campushealth.unc.edu/charges-insurance/mandatory-student-health-insurance).) Students are required to waive with existing creditable insurance each semester or they will automatically be enrolled in the UNC System Student Health Insurance Plan, which is administered by Student Blue/BCBS of NC. To waive or enroll/renew, visit the Student Blue Web site (http://www.bcbsnc.com/unc).

Biennially:

- CPR for Healthcare Providers training. Documentation of current certification is required of the matriculating student. (Note that the school requires in-person CPR skills assessment.)

Infection Control: One of the consequences of the delivery of health care is the possibility of contracting an infectious disease such as tuberculosis, hepatitis, HIV, or herpes. To minimize this risk, the school has adopted an Infection Control Policy that requires the wearing of a clinical overgarment, disposable gloves, a mask, and protective eye covering when oral examinations and dental procedures are being performed.

Infectious Disease Status

Students engaged in patient care activities are required to know their tuberculosis and hepatitis B (HBV) status, and are encouraged to learn their hepatitis C (HCV) and HIV status. State regulations require health care workers, including students, who perform surgical or dental procedures or who assist in such procedures in a way that may result in an exposure of patients to their blood, and who know themselves to be infected with HIV or HBV, to report their status to the state health director. See UNC's policy (http://ehs.unc.edu/manuals/ehsmanual/chapter-6/occupational-health-requirements).

Late Registration

University regulations require students who do not register before the first day of classes in any semester or summer session to pay an additional fee of $20 for delayed registration. Any student who believes that she/he can show sufficient justification for the delay may petition for a refund by completing a form, which can be found online (https://registrar.unc.edu/guide/registration-policies/late-fee-refund-petition), and outlining the reason for delay. This form must bear the approval of the dean of the UNC Adams School of Dentistry.

Awarding of Degrees and Certificates

To be awarded a degree or certificate, students must satisfactorily complete all requirements of their respective program.

Class and Clinic Attendance

Regular class and clinic attendance is a student obligation. No right or privilege exists that permits a student to be absent from any given number of sessions.

Patient Care Responsibilities

Students are granted the privilege of participating in the patient care system of the UNC Adams School of Dentistry and are expected to provide care consistent with our patient-centered philosophy. The patient is a central part of the health care team and is involved in the planning of his or her care. It is the responsibility of the dental student to provide the patient with the information needed so they make informed decisions about their treatment. The dental student has the responsibility to provide high-quality, evidence-based care to all their assigned patients in a timely manner and to uphold the ethical responsibilities as outlined in the school's Code of Professional Conduct and the Code of Clinical Behavior.

Current academic policies and procedures can be found online (https://unc.policystat.com/policy_search/category/?terms=54058&search_query). However, policies are subject to change at any time. The manual provides guidelines for governing the UNC Adams School of Dentistry educational programs and advises students, faculty, and staff of academic policies and procedures related to the respective programs.

DENG

Graduate-level Courses

Code	Title	Hours
DENG 701	Introduction to Research Design	1
DENG 702	Biostatistics	2
DENG 703	Applied Dental Research Methods	2
DENG 704	Interdisciplinary Care Conference	1
DENG 707	Regional Anatomy	3
DENG 720	Applied Pharmacology	1
DENG 751	Advanced Pain and Anxiety Control	2
DENG 890	Special Topics in Dentistry	1-3
DENG 799	Orientation for Clinical and Research Program	2
DENG 901	Research	1-6

DENG 701. Introduction to Research Design. 1 Credit.
Introduction to scientific methodology, clinical epidemiology, oral biology and technology transfer, clinical trials, evaluation of scientific literature, experiments of nature, animal models for oral research, ethnics in research, laboratory simulations and research models, and proposal writing.
Grading status: Letter grade.

DENG 702. Biostatistics. 2 Credits.
Introduction of biostatistical concepts, sampling, descriptive statistics, hypothesis testing, comparisons of means and proportions, 2x2 and r x c tables, correlation and simple regression, sample size and power, analysis of variance, factorial anova, multiple regression, and nonparametric tests.
Grading status: Letter grade.

DENG 703. Applied Dental Research Methods. 2 Credits.
This course builds on previous courses, DENG 701 Introduction to Research Methods and DENG 702 Biostatistics. The goal is to help students prepare and complete the thesis with emphasis on the results section.
Grading status: Letter grade.

DENG 704. Interdisciplinary Care Conference. 1 Credit.
For first & second-year dental graduate students. Review and discussion of the diagnoses, treatment plans, prognoses, and interdisciplinary care of selected patients.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DENG 707. Regional Anatomy. 3 Credits.
Review of the anatomy of the head and neck region, including osteology, cardiovascular system, head and neck embryology, special sensory modalities, nervous system, functional nervous system, and extraoral correlation with the oral cavity.
Grading status: Letter grade.

DENG 720. Applied Pharmacology. 1 Credit.
This course is designed for dental practitioners with sufficient general and specific clinical pharmacology knowledge to appropriately and safely utilize drugs in treatment. The course will be concentrated in three areas: general clinical pharmacology principles, general clinical pharmacology of medications, specific clinical pharmacology of drugs utilized by dental practitioners.
Grading status: Letter grade.

DENG 751. Advanced Pain and Anxiety Control. 2 Credits.
Introduction to: operating room and recovery room protocol; patient cardiovascular and pulmonary evaluation; adjunct and inhalant agents; nitrous oxide; pharmacology of IV anesthetic agents; EKG interpretation; arterial blood gases; anesthesia equipment monitoring; anesthetic complications and emergencies; fluid and electrolyte and blood therapy; airway management; venipuncture; pediatric anesthesia; and pre-op evaluation, orders, and rounds.
Grading status: Letter grade.

DENG 799. Orientation for Clinical and Research Program. 2 Credits.
During this course, student complete required clinical training in the program and the School of Dentistry, attend a library orientation, and are introduced to research procedures and requirements.
Grading status: Letter grade.

DENG 890. Special Topics in Dentistry. 1-3 Credits.
This course will cover foundational topics or dental specialty content tailored to the certificate or master students clinical area of interest.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

DENG 901. Research. 1-6 Credits.
The goal of this course is to provide certificate or master students an opportunity to investigate different research areas and to conduct an independent research project under a faculty mentor.
Repeat rules: May be repeated for credit. 15 total credits. 5 total completions.
Grading status: Letter grade.

DHED

Graduate-level Courses

Code	Title	Hours
DHED 705	Medical Emergencies/Local Anesthesia	2
DHED 715	Current Concepts in Clinical Skills	2
DHED 720	Educational Concepts	2
DHED 730	Organization and Administration	3
DHED 736	Clinical/Laboratory Teaching Practicum	3
DHED 753	Advanced Intraoral Functions	3
DHED 754	Advanced Intraoral Functions (Periodontics)	3
DHED 760	Seminar in Education and Research	1
DHED 774	Personnel Management Seminar	2
DHED 834	Dental Management Seminar	4
DHED 836	Advanced/Clinical Teaching	3
DHED 837	Internship	6-9
DHED 860	Seminar in Education and Research	1
DHED 896	Independent Study in Dental Hygiene Education	1-4
DHED 993	Master's Research and Thesis	3

DHED 705. Medical Emergencies/Local Anesthesia. 2 Credits.
This is the fundamental course in local anesthesia for the dental hygienist. The course covers pharmacology, neuroanatomy, anatomy, neurophysiology as well as administration and techniques of local anesthesia.
Grading status: Letter grade.

DHED 715. Current Concepts in Clinical Skills. 2 Credits.
This course reviews and updates students in current treatment and diagnostic modalities in dental allied education. Students who satisfactorily pass the evaluation will be exempt.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DHED 720. Educational Concepts. 2 Credits.
This course is designed to introduce the graduate student to various teaching philosophies and methodologies. A variety of educational concepts such as methods of presentation, testing, and measurement are explored. Emphasis is placed on the practical application of theory.
Grading status: Letter grade.

DHED 730. Organization and Administration. 3 Credits.
Provides information and experience in leadership, administration, and accreditation for allied dental education programs.
Grading status: Letter grade.

DHED 736. Clinical/Laboratory Teaching Practicum. 3 Credits.
This course provides students with the knowledge and skills to function as a competent clinical instructor. Psychomotor skill development and analysis and remediation of performance problems are two topics related to clinical teaching that are stressed.
Grading status: Letter grade.

DHED 753. Advanced Intraoral Functions. 3 Credits.

DHED 754. Advanced Intraoral Functions (Periodontics). 3 Credits.

DHED 760. Seminar in Education and Research. 1 Credit.
This course is designed to provide knowledge and stimulate discussion about pertinent topics in dental and allied dental education and research.
Grading status: Letter grade.

DHED 774. Personnel Management Seminar. 2 Credits.

DHED 834. Dental Management Seminar. 4 Credits.

DHED 836. Advanced/Clinical Teaching. 3 Credits.

DHED 837. Internship. 6-9 Credits.
This full semester internship provides the student with the opportunity to student teach in an allied dental program.
Grading status: Letter grade.

DHED 860. Seminar in Education and Research. 1 Credit.

DHED 896. Independent Study in Dental Hygiene Education. 1-4 Credits.

DHED 993. Master's Research and Thesis. 3 Credits.

ENDO

Graduate-level Courses

Code	Title	Hours
ENDO 710	Advanced Clinical Endodontics	2-6
ENDO 811	Endodontics Case Analysis	3
ENDO 812	Endodontics Topical Literature Review	2
ENDO 821	Literature Review of Current Topics in Endodontics	2
ENDO 993	Master's Research and Thesis	3

ENDO 710. Advanced Clinical Endodontics. 2-6 Credits.
870 hours of clinical practice
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ENDO 811. Endodontics Case Analysis. 3 Credits.
180 hours conference.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ENDO 812. Endodontics Topical Literature Review. 2 Credits.
270 hours.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ENDO 821. Literature Review of Current Topics in Endodontics. 2 Credits.
This course aims to provide students in the Endodontic program an opportunity to read, analyze, and comment on contemporary literature in Endodontics and other relevant dental and medical information.
Repeat rules: May be repeated for credit. 12 total credits. 6 total completions.
Grading status: Letter grade.

ENDO 993. Master's Research and Thesis. 3 Credits.
Third year.
Repeat rules: May be repeated for credit.

OCBM

Graduate-level Courses

Code	Title	Hours
OCBM 701	Research Techniques in Oral Biology	3
OCBM 710	Discussion in Oral Biology	1
OCBM 720	Topics in Oral Biology	1
OCBM 721	Directed Studies in Oral Biology	1
OCBM 722	Directed Studies in Oral Biology	1
OCBM 723	Directed Studies in Oral Biology	1
OCBM 724	Directed Studies in Oral Biology	1
OCBM 730	Biological Concepts	1.5

OCBM 731	Biological Concepts	1.5
OCBM 732	Biological Concepts	1.5
OCBM 733	Translational Pain Medicine	1.5
OCBM 741	Skeletal Biology	2
OCBM 770	Selected Topics in Oral Biology	1
OCBM 780	Introduction to Scientific Writing	1
OCBM 993	Master's Research and Thesis	3
OCBM 994	Doctoral Research and Dissertation	3

OCBM 701. Research Techniques in Oral Biology. 3 Credits.
Permission of the instructor. The course familiarizes participants with a selection of specialized research techniques employed in interdisciplinary basic science approaches to problems in oral biology. Four laboratory hours a week.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

OCBM 710. Discussion in Oral Biology. 1 Credit.
Permission of the instructor. A series of seminars on topics relevant to research and scientific knowledge in the field of oral biology. Visiting scientists from other research centers in the country and abroad participate in the discussion series. One lecture hour a week.
Repeat rules: May be repeated for credit. 4 total credits. 4 total completions.
Grading status: Letter grade.

OCBM 720. Topics in Oral Biology. 1 Credit.

OCBM 721. Directed Studies in Oral Biology. 1 Credit.
Topics include extracellular matrices, immunology, inflammation, neurobiology, and pain management.
Grading status: Letter grade.

OCBM 722. Directed Studies in Oral Biology. 1 Credit.
Topics include extracellular matrices, immunology, inflammation, neurobiology, and pain management.
Grading status: Letter grade.

OCBM 723. Directed Studies in Oral Biology. 1 Credit.
Topics include extracellular matrices, immunology, inflammation, neurobiology, and pain management.
Grading status: Letter grade
Same as: NBIO 721.

OCBM 724. Directed Studies in Oral Biology. 1 Credit.
Topics include extracellular matrices, immunology, inflammation, neurobiology, and pain management.
Grading status: Letter grade.

OCBM 730. Biological Concepts. 1.5 Credit.
Overview of structures and biological determinants of conditions and diseases of the oral cavity. Both growth and development and pathophysiology will be introduced in the context of three areas of oral biology: biology of extracellular matrices, host-pathogens interactions, and orofacial neurobiology.
Grading status: Letter grade.

OCBM 731. Biological Concepts. 1.5 Credit.
Overview of structures and biological determinants of conditions and diseases of the oral cavity. Both growth and development and pathophysiology will be introduced in the context of three areas of oral biology: biology of extracellular matrices, host-pathogens interactions, and orofacial neurobiology.
Grading status: Letter grade.

OCBM 732. Biological Concepts. 1.5 Credit.
Overview of structures and biological determinants of conditions and diseases of the oral cavity. Both growth and development and pathophysiology will be introduced in the context of three areas of oral biology: biology of extracellular matrices, host-pathogens interactions, and orofacial neurobiology.
Grading status: Letter grade
Same as: NBIO 732, PHCO 747.

OCBM 733. Translational Pain Medicine. 1.5 Credit.
This is a clinician-taught course that advances students' understanding of chronic pain (e.g., head/face pain, pelvic pain, back pain, cancer pain, surgical pain) in both the classroom and the clinic.
Requisites: Prerequisite, OBIO 732; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: PHCO 748.

OCBM 741. Skeletal Biology. 2 Credits.
This course will examine bone formation and bone homeostasis. Cellular and molecular determinants of osteogenesis, osteoclastogenesis, bone remodeling, and select examples of bone disease will be explored. Course format will be faculty lecture, group discussion, and assigned student presentation of current literature.
Grading status: Letter grade.

OCBM 770. Selected Topics in Oral Biology. 1 Credit.
Review of current findings in selected areas of oral biology. Students will critique current literature dealing with the newest discoveries in neuroscience, inflammation, or pathogenesis in an interactive forum between students and faculty.
Repeat rules: May be repeated for credit. 4 total credits. 4 total completions.
Grading status: Letter grade.

OCBM 780. Introduction to Scientific Writing. 1 Credit.
Seminar series that will give generic instructions covering grant writing skills and structure, as well as offer insight for scientific writing.
Grading status: Letter grade.

OCBM 993. Master's Research and Thesis. 3 Credits.
Permission of the instructor.
Repeat rules: May be repeated for credit.

OCBM 994. Doctoral Research and Dissertation. 3 Credits.
Permission of the instructor.
Repeat rules: May be repeated for credit.

ORPA

Graduate-level Courses

Code	Title	Hours
ORPA 731	Surgical Oral Pathology Seminar	1-3
ORPA 732	Current Perspectives on Oral and Maxillofacial Pathology	1-3
ORPA 733	Advanced Oral Pathology	1-3
ORPA 750	Surgical Pathology in the Hospital Setting	1-3
ORPA 762	Oral and Maxillofacial Pathology Seminar	2
ORPA 763	Oral and Maxillofacial Pathology Seminar	2
ORPA 993	Master's Research and Thesis	3

ORPA 731. Surgical Oral Pathology Seminar. 1-3 Credits.
This weekly seminar uses unknown cases as the basis for discussion of a variety of biopsy specimens taken from the head and neck. Clinical management of cases also is discussed. Students will develop skills for interacting with their medical and dental colleagues.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ORPA 732. Current Perspectives on Oral and Maxillofacial Pathology. 1-3 Credits.
This seminar series will focus on current research in oral and maxillofacial pathology (OMP) and related fields. Current scientific literature will be critically reviewed. In addition, students will review historical literature to gain a perspective on the development of OMP as a specialty.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ORPA 733. Advanced Oral Pathology. 1-3 Credits.
This lecture and clinicopathologic correlation series includes study of the etiology, pathogenesis, clinical, and histopathologic aspects of diseases of the head and neck.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ORPA 750. Surgical Pathology in the Hospital Setting. 1-3 Credits.
Under the supervision of the hospital pathologists, the student will rotate in anatomic pathology, laboratory medicine, dermatopathology, hematopathology, molecular medicine, surgical specialties, and other elective areas to develop advanced concepts of disease as well as a working relationship with medical colleagues.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ORPA 762. Oral and Maxillofacial Pathology Seminar. 2 Credits.
Course includes developmental disturbances of soft and hard tissues, syndromes, inflammation, immunology, pulp and periapical disease, periodontal disease, tumor-like proliferations, microbial disease, endocrine and metabolic diseases. Also includes odontogenic cysts, salivary gland disease, oral epithelial and mesenchymal neoplasms, bone and joint diseases, nerve muscle diseases, dermatological diseases, and blood diseases.
Grading status: Letter grade.

ORPA 763. Oral and Maxillofacial Pathology Seminar. 2 Credits.
Continuation of ORPA 762.
Grading status: Letter grade.

ORPA 993. Master's Research and Thesis. 3 Credits.

OPER

Graduate-level Courses

Code	Title	Hours
OPER 701	Operative Dentistry Seminar II	1
OPER 702	Operative Literature Review I	1
OPER 704	Operative Clinical Seminar A	1
OPER 705A	Teaching Internship	1-9
OPER 731	Cariology	1
OPER 732	Introduction to Operative Dentistry	3
OPER 736	Graduate Dental Biomaterials II	3
OPER 790	Operative Dentistry Clinic II	2-6
OPER 810	Applied Biomaterials Research	3
OPER 993	Master's Research and Thesis	3

OPER 701. Operative Dentistry Seminar II. 1 Credit.
(Aesthetic and Adhesive Dentistry.) In this seminar, graduate students will learn the scientific principles and clinical techniques involved in dental aesthetics and adhesive restorations. Students may be required to develop a case presentation for this seminar.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

OPER 702. Operative Literature Review I. 1 Credit.
This is a weekly seminar offering a forum for presentation and discussion of relevant scientific papers on various operative dentistry related topics. Typically, a resident or faculty member presents one or more relevant papers, which is followed by a critical analysis of the study and discussion of the topic.
Repeat rules: May be repeated for credit. 4 total credits. 4 total completions.
Grading status: Letter grade.

OPER 704. Operative Clinical Seminar A. 1 Credit.
This seminar will involve a series of presentations where the student will present clinical cases resolved in the graduate clinic.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

OPER 705A. Teaching Internship. 1-9 Credits.
Student will be actively involved in teaching Functional Dental Anatomy course. Student will participate in preclinical laboratory instruction and evaluation procedures.
Grading status: Letter grade.

OPER 731. Cariology. 1 Credit.
Discusses specific topics related to Cariology. Students will provide care in clinic identifying and treating patients based on caries risk assessment. Seminar formats include lectures, discussions, literature reviews, and practical (hands-on) exercises. Students must present a clinical case discussing alternative treatment based on patient's caries risk assessment.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

OPER 732. Introduction to Operative Dentistry. 3 Credits.
Provides students with broad introduction to key Operative Dentistry concepts. Students will be exposed to a wide variety of topics, including intensive training in direct restorations, dental photography, fabrication of diagnostic casts and implant stents. Prepares incoming graduate students for clinical patient care and teaching in predoctoral courses and clinics.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

OPER 736. Graduate Dental Biomaterials II. 3 Credits.

OPER 790. Operative Dentistry Clinic II. 2-6 Credits.
(Patient treatment.) Primary focus is on patients requiring more advanced considerations for operative dentistry treatment planning and/or procedures. There will be a strong focus on aesthetic dentistry, prevention, and 'medical management' of caries, and the use of advanced technologies to provide operative dentistry treatment.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

OPER 810. Applied Biomaterials Research. 3 Credits.
This course involves application of the principles of in-vitro testing of dental materials. Students will be required to prepare, subject them to specified testing, and collect data.
Repeat rules: May be repeated for credit. 3 total credits. 10 total completions.
Grading status: Letter grade.

OPER 993. Master's Research and Thesis. 3 Credits.
The student will begin writing a master's thesis.
Repeat rules: May be repeated for credit.

ORAD

Graduate-level Courses

Code	Title	Hours
ORAD 702	Advanced Oral Radiologic Technology	4
ORAD 704	Advanced Radiologic Diagnosis II	3
ORAD 705	Principles for Advanced Diagnostic and Therapeutic Radiology	4
ORAD 706	Advanced Oral Radiology	2
ORAD 707	Graduate Clinical Oral Radiology	2-6
ORAD 710	Oral and Maxillofacial Radiology Literature Review	1
ORAD 802	Clinical Radiology Conference	1
ORAD 993	Master's Research and Thesis	3

ORAD 702. Advanced Oral Radiologic Technology. 4 Credits.
Seminars, laboratory, and clinical sessions to provide experience in advanced oral radiologic procedures.
Grading status: Letter grade.

ORAD 704. Advanced Radiologic Diagnosis II. 3 Credits.
Literature review, seminars, and clinical experience in advanced radiologic diagnosis.
Grading status: Letter grade.

ORAD 705. Principles for Advanced Diagnostic and Therapeutic Radiology. 4 Credits.
Literature review and seminars in the application of radiologic procedures such as computed tomography, digital imaging, and magnetic resonance for diagnosis of oral and maxillofacial conditions. Fundamentals of radiation therapy are also included.
Grading status: Letter grade.

ORAD 706. Advanced Oral Radiology. 2 Credits.
Radiographic selection criteria, dental radiographs efficacy, panoramic radiology, extraoral techniques, radiation risks and radiological hygiene in dental practice, principle of radiologic interpretation, radiology of cysts and tumors, radiology of the TMJ, radiology of systemic disease, quality improvement, radiology for dental implants, digital imaging in dentistry, and advanced craniofacial region imaging.
Grading status: Letter grade.

ORAD 707. Graduate Clinical Oral Radiology. 2-6 Credits.

ORAD 710. Oral and Maxillofacial Radiology Literature Review. 1 Credit.
Course is designed for graduate students with a strong interest in OMFR and seeks to expose students to classical articles in the radiology literature.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ORAD 802. Clinical Radiology Conference. 1 Credit.
Case studies in the interpretation of unusual conditions of the oral and maxillofacial region.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ORAD 993. Master's Research and Thesis. 3 Credits.

ORTH

Graduate-level Courses

Code	Title	Hours
ORTH 801	Orthodontic Technique	4
ORTH 802	Current Topics in Orthodontics	2
ORTH 803	Orthodontic Diagnosis	2
ORTH 805	Advanced Clinical Orthodontics	2-6
ORTH 806	Science of Tooth Movement	2
ORTH 807	Orthodontic Biomaterials	1-3
ORTH 808	Growth and Development	4
ORTH 809	Preventative Orthodontics	3
ORTH 810	Multidisciplinary Management of Craniofacial Anomalies	1
ORTH 815	Oral-Pharyngeal Function	1
ORTH 820	Advanced Biomechanics	3
ORTH 822	Environment of Specialty Practice	3
ORTH 993	Master's Research and Thesis	3

ORTH 801. Orthodontic Technique. 4 Credits.
Introduction to orthodontic technique and procedures for beginning orthodontic graduate students.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ORTH 802. Current Topics in Orthodontics. 2 Credits.
Seminars on pertinent orthodontic literature for advanced orthodontic students.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ORTH 803. Orthodontic Diagnosis. 2 Credits.
Principles of orthodontic diagnosis and analysis of diagnostic records for orthodontic specialists.
Grading status: Letter grade.

ORTH 805. Advanced Clinical Orthodontics. 2-6 Credits.

ORTH 806. Science of Tooth Movement. 2 Credits.
Mechanical principles in orthodontic force production and control; biological response to orthodontic force.
Grading status: Letter grade.

ORTH 807. Orthodontic Biomaterials. 1-3 Credits.
Introduction to orthodontic biomaterials and integration with the basic principles of engineering, science, and orthodontics.
Grading status: Letter grade.

ORTH 808. Growth and Development. 4 Credits.
Principles of growth and development, emphasizing dento-facial development from an evolutionary and molecular biology perspective, as well as the traditional anatomical perspective.
Grading status: Letter grade.

ORTH 809. Preventative Orthodontics. 3 Credits.

ORTH 810. Multidisciplinary Management of Craniofacial Anomalies. 1 Credit.
This course introduces the graduate student to the management of patients with craniofacial anomalies using a multidisciplinary team approach. The course gives the graduate student a basic understanding of the role of specialties involved, the procedures, and timing of interventions in the management of craniofacial patients from birth to adulthood.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ORTH 815. Oral-Pharyngeal Function. 1 Credit.
Maturation of oral and pharyngeal function, including speech and its relation to dento-facial development.
Grading status: Letter grade.

ORTH 820. Advanced Biomechanics. 3 Credits.
Concepts in orthodontic mechanics emphasizing segmented arch approaches and laboratory tests of appliance components and designs.
Grading status: Letter grade.

ORTH 822. Environment of Specialty Practice. 3 Credits.
Trends in health care delivery; organization and management of orthodontic specialty practice.
Grading status: Letter grade.

ORTH 993. Master's Research and Thesis. 3 Credits.

PEDO

Graduate-level Courses

Code	Title	Hours
PEDO 800	Maternal and Child Health Seminar Series	1
PEDO 801	Pediatric Diagnosis and Treatment Planning Seminar	1
PEDO 803	Principles of Pediatric Dentistry	1
PEDO 804	Advanced Clinical Pediatric Dentistry	2-6
PEDO 805	Contemporary Practice Management	1
PEDO 806	Treatment of Pediatric Dental Emergencies	1
PEDO 993	Master's Research and Thesis	3

PEDO 800. Maternal and Child Health Seminar Series. 1 Credit.
(One hour a week for each fall and spring semester.) This is a seminar series that focuses on a broad range of topics related to pediatric dentistry and pediatric medicine, including general medical issues, practice management, social issues, child advocacy, and presentation of unusual clinical cases.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PEDO 801. Pediatric Diagnosis and Treatment Planning Seminar. 1 Credit.
(One hour a week each fall and spring semester for two years.) This course is a seminar wherein diagnosis and treatment planning options are considered through a problem-oriented approach. For cases in progress and completed, outcomes are reviewed and critiqued.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PEDO 803. Principles of Pediatric Dentistry. 1 Credit.
(Six hours a month for fall and spring semesters for 24 months.) This seminar covers the fundamentals of pediatric dentistry from behavior management to pulp therapy. The course relies on readings of classic and contemporary literature with seminars that include discussions and critiques of readings.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PEDO 804. Advanced Clinical Pediatric Dentistry. 2-6 Credits.
This course provides clinical experience in all phases of pediatric dentistry, including dental treatment under conscious sedation and general anesthesia.
Repeat rules: May be repeated for credit. 6 total credits. 99 total completions.
Grading status: Letter grade.

PEDO 805. Contemporary Practice Management. 1 Credit.
(One hour monthly during the spring semester for three years.) This course provides an understanding of the design, implementation, and management of a modern pediatric dental practice. Most seminar leaders are private practitioners who are adjunct faculty in the department.
Grading status: Letter grade.

PEDO 806. Treatment of Pediatric Dental Emergencies. 1 Credit.
(One hour a week each week for 36 months.) This seminar series serves as a faculty/resident forum for reviewing the previous week's emergency cases and in which diagnosis and treatment options are reviewed and critiqued. Endodontic faculty and residents also participate in this course.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PEDO 993. Master's Research and Thesis. 3 Credits.

PERI

Graduate-level Courses

Code	Title	Hours
PERI 710	Periodontal Therapy	1
PERI 711	Periodontal Therapy	1
PERI 721	Case Analysis	2
PERI 723	Case Analysis	2
PERI 731	Seminar in Periodontology	2
PERI 761	Seminar in Periodontology	2
PERI 762	Seminar in Dental Implantology	1
PERI 820	Introduction to Implants	1
PERI 821	Clinical Implantology	1
PERI 891	Advanced Clinical Periodontics and Clinical Practice	2-6
PERI 993	Master's Research and Thesis	3

PERI 710. Periodontal Therapy. 1 Credit.
This graduate seminar reviews techniques and procedures for treating periodontal diseases. Topics include gingival grafting, surgical flap management, osseous surgery, periodontal regeneration, antimicrobials, host modulation, and periodontal medicine.
Grading status: Letter grade.

PERI 711. Periodontal Therapy. 1 Credit.
This graduate seminar reviews techniques and procedures for treating periodontal diseases. Topics include gingival grafting, surgical flap management, osseous surgery, periodontal regeneration, antimicrobials, host modulation, and periodontal medicine.
Grading status: Letter grade.

PERI 721. Case Analysis. 2 Credits.
This graduate seminar continues themes introduced in PERI 720 and discusses advanced implant topics including bone augmentation, peri-implantitis, and implant efficacy assessment. The seminar includes didactic lectures, case presentations, and journal club components. Spring.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PERI 723. Case Analysis. 2 Credits.

PERI 731. Seminar in Periodontology. 2 Credits.
In this first-year literature review course, graduate students present and evaluate the evidence on periodontal disease etiology, pathogenesis, risk factors and treatments including mechanical, surgical, and pharmacological approaches.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PERI 761. Seminar in Periodontology. 2 Credits.
In this second- and third-year literature review course, graduate students discuss evidence on advanced topics in periodontology or related disciplines.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PERI 762. Seminar in Dental Implantology. 1 Credit.
In this literature review course, graduate students will discuss evidence on dental implant and other related therapies.
Grading status: Letter grade.

PERI 820. Introduction to Implants. 1 Credit.
This graduate seminar traces the biology of osseointegration, surgical techniques in dental implant placement, and prosthetic restoration. The seminar includes didactic lectures, case presentations, and journal club components.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PERI 821. Clinical Implantology. 1 Credit.
This graduate seminar continues themes introduced in PERI 820 and discusses advanced implant topics including bone augmentation, peri-implantitis, and implant efficacy assessment. The seminar includes didactic lectures, case presentations, and journal club components.
Grading status: Letter grade.

PERI 891. Advanced Clinical Periodontics and Clinical Practice. 2-6 Credits.
Within this specialty clinic, graduate students gain experience and competency in diagnosing and comprehensively treating patients with periodontal diseases. Cases may involve interdisciplinary care, medical management, dental implants, and sedation procedures.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PERI 993. Master's Research and Thesis. 3 Credits.

PROS

Graduate-level Courses

Code	Title	Hours
PROS 702	Introduction to Prosthodontic Literature	1
PROS 722	Prosthodontic Principles, Diagnosis, and Treatment Planning - Fixed and Removable	2
PROS 732	Prosthodontic Diagnosis and Treatment Planning	1
PROS 751	Maxillofacial Prosthodontic Principles, Diagnosis, and Treatment	1
PROS 752	Maxillofacial Prosthodontic Principles, Diagnosis, and Treatment	1
PROS 801	Advanced Clinical Fixed and Removable Prosthodontics	2-6
PROS 851	Clinical Maxillofacial Prosthodontics	2
PROS 853	Clinical Maxillofacial Prosthodontics	2
PROS 993	Master's Research and Thesis	3

PROS 702. Introduction to Prosthodontic Literature. 1 Credit.
A seminar designed to review early and classic prosthodontic literature common to fixed and removable prosthodontics.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PROS 722. Prosthodontic Principles, Diagnosis, and Treatment Planning - Fixed and Removable. 2 Credits.
Principles of diagnosis and treatment relative to the prosthodontic patient are covered in depth in this seminar series.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PROS 732. Prosthodontic Diagnosis and Treatment Planning. 1 Credit.
This course provides the prosthodontic student with adequate knowledge in fixed prosthodontics to promote continued lifelong learning, offer quality treatment to a diverse population with various needs using fixed prosthesis, manage complications and failures of fixed prostheses, and to challenge the ABP examination.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PROS 751. Maxillofacial Prosthodontic Principles, Diagnosis, and Treatment. 1 Credit.
Principles of diagnosis and treatment relative to maxillofacial prosthodontic patients are covered in depth in this seminar series.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PROS 752. Maxillofacial Prosthodontic Principles, Diagnosis, and Treatment. 1 Credit.
Principles of diagnosis and treatment relative to maxillofacial prosthodontic patients are covered in depth in this seminar series.
Repeat rules: May be repeated for credit. 6 total credits. 6 total completions.
Grading status: Letter grade.

PROS 801. Advanced Clinical Fixed and Removable Prosthodontics. 2-6 Credits.
This clinical offering is designed to permit the graduate student to experience all phases of advanced patient management in fixed and removable prosthodontics.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PROS 851. Clinical Maxillofacial Prosthodontics. 2 Credits.
This clinical offering is designed to permit the graduate student to manage the comprehensive prosthodontic care of congenital and/or acquired maxillofacial defects in both the dental school and hospital environment.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PROS 853. Clinical Maxillofacial Prosthodontics. 2 Credits.
This clinical offering is designed to permit the graduate student to manage the comprehensive prosthodontic care of congenital and/or acquired maxillofacial defects in both the dental school and hospital environment.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PROS 993. Master's Research and Thesis. 3 Credits.
Completion of thesis for master of science degree.
Repeat rules: May be repeated for credit.

DEPARTMENT OF DRAMATIC ART (GRAD)

Contact Information

Department of Dramatic Art
Visit Program Website (http://drama.unc.edu)

Adam Versényi, Chair, Dramaturg/PRC

Jeffrey Cornell, Associate Chair

The Department of Dramatic Art offers professional training programs in acting, costume production, and technical production leading to the master of fine arts (M.F.A.) degree. The production facilities in the Joan H. Gillings Center for Dramatic Art include the Paul Green Theatre and the Elizabeth Price Kenan Theatre along with studios, rehearsal hall, costume complex, and scene shops.

Admission

Generally, only first-year applicants are considered for admission. Candidates should check with the department for admission information pertaining to their specific area of specialization (i.e., acting, technical production, or costume production).

All applicants must meet admission requirements established by The Graduate School of the University of North Carolina at Chapel Hill. Each area of specialization within the department requires additional application materials. In the costuming and technical areas, applicants are required to submit portfolios. Candidates should check with the department for further information as to what each area entails. All acting candidates must audition. In addition to on-campus auditions, the department holds auditions two out of every three years in February in New York and Chicago. Applications must be received by January 10 to be considered.

Each student is responsible for becoming familiar with the general regulations of The Graduate School and particularly with the dates indicated on the calendar for the academic year. This information is contained elsewhere in the Graduate Catalog. Please note that, due to the nature of the professional training programs, the calendar for graduate students in the Department of Dramatic Art will not always coincide with that of the University. Graduate students in the department are frequently required to work on productions during University-scheduled holidays.

A limited number of graduate appointments are available in the department. Appointments are presently awarded in the areas of acting, technical production, and costume production in support of courses. All appointments involve instructional or laboratory supervisory responsibility.

Through disciplined classroom training and a progressive involvement in performance or production opportunities, students in the master of fine arts (M.F.A.) program are challenged to develop the skills and attitudes that enable them to compete in the professional theatre. Emphasizing accomplishment in a range of performance and production styles, the programs complement the variety of theatrical experiences available in the PlayMakers Repertory Company (PRC), a professional full-season equity company and a member of The League of Resident Theatres. Within his or her area of specialization, a student will be ready upon graduation to perform a variety of roles or assume a range of responsibilities onstage or backstage in stage, film, or television. The University of North Carolina at Chapel Hill is a member of URTA (University/Resident Theatre Association, Inc.).

Curriculum

Each candidate pursues a course of study in a conservatory environment. Classroom training offers a variety of approaches, each designed to develop and refine the candidate's artistic and professional potential. Classroom work is augmented by participation in the professional season of PlayMakers Repertory Company. In addition to the PRC, students find performance opportunities in studio projects and productions.

Evaluation

At least once each semester, the faculty formally evaluates the candidate's progress and makes recommendations concerning his or her continuation in the program. Evaluations are made of each individual on the basis of classroom and performance or production work. Letter grades (H, P, L, F) are assigned for work in all courses.

Residency and Requirements

All candidates are required to be in residence for three years, six consecutive semesters. The departmental system of evaluation requires that the student be invited to continue in the second and then in the final year of the program. While all programs require their students to complete 60 credit hours, those hours are apportioned differently from program to program. In addition to 60 credit hours, each area of specialization carries its own graduation requirements. Candidates are encouraged to ascertain individual requirements for graduation as soon as possible.

Detailed information can be obtained by addressing inquiries to the Director of Graduate Studies, Department of Dramatic Art, CB# 3230, Center for Dramatic Art, The University of North Carolina at Chapel Hill, Chapel Hill, N.C. 27599-3230. Additional information (http://drama.unc.edu/programs-of-study/graduate-studies) is available on the department's Web site.

Professors

McKay Coble, Design, Head of Graduate Studies
Raymond E. Dooley, Head of M.F.A. Acting, Actor
Roberta A. Owen, Costume History and Design

Associate Professors

Janet A. Chambers, Design
Michael J. Rolleri, Head of Technical Production

Professors of the Practice

Judith L. Adamson, Head of Costume Production
Vivienne Benesch, Producing Artistic Director/PRC

Assistant Professors

Tracy Bersley, Movement
Julia Gibson, Acting
John Patrick, Voice and Speech

Lecturer

Adam Maxfield, Technical Director

DRAM

Advanced Undergraduate and Graduate-level Courses

DRAM 460. Stage Management. 3 Credits.
Permission of the department. A study of the basic principles and practices of modern stage management.
Gen Ed: EE- Performing Arts.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

DRAM 465. Sound Design. 3 Credits.
The study of general principles of sound design for the theatre. Theory and application of sound design techniques for the stage, including script analysis, staging concepts, special effects, sound plots, and technology.
Grading status: Letter grade.

DRAM 466. Scene Design. 3 Credits.
Permission of the instructor. General principles of visual design as applied to scenery for the theatre. Instruction in standard techniques of planning and rendering scene design.
Gen Ed: VP.
Grading status: Letter grade.

DRAM 467. Costume Design I. 3 Credits.
Permission of the instructor. Studies and practicum in play analysis and costume design for the theatre. Instruction in techniques of planning and rendering costume design.
Gen Ed: VP.
Grading status: Letter grade.

DRAM 468. Lighting Design I. 3 Credits.
Permission of the instructor. General principles of lighting design as applied to the performing arts. Theory and instruction in standard techniques of lighting for the stage.
Gen Ed: VP.
Grading status: Letter grade.

DRAM 470. Survey of Costume History. 3 Credits.
A survey of historic costume forms from ancient Egypt to the present time. Honors version available
Gen Ed: HS, NA.
Grading status: Letter grade.

DRAM 470H. Survey of Costume History. 3 Credits.
A survey of historic costume forms from ancient Egypt to the present time.
Gen Ed: HS, NA.
Grading status: Letter grade.

DRAM 473. Costume Construction I. 1-3 Credits.
Permission of the instructor. Beginning instruction in pattern making through flat pattern for theatrical costume.
Grading status: Letter grade.

DRAM 474. Costume Construction II. 1-3 Credits.
Beginning instruction in pattern making through draping on a dress form for theatrical costume.
Requisites: Prerequisite, DRAM 473; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

DRAM 475. Costume History: Africa, Asia, and Arabia. 3 Credits.
A survey of the traditional costume forms on the African Continent, in Asia (China, Japan, India), and on the Arabian Peninsula. Honors version available
Gen Ed: HS, BN.
Grading status: Letter grade.

DRAM 475H. Costume History: Africa, Asia, and Arabia. 3 Credits.
A survey of the traditional costume forms on the African Continent, in Asia (China, Japan, India), and on the Arabian Peninsula
Gen Ed: HS, BN.
Grading status: Letter grade.

DRAM 480. Period Styles for Production. 3 Credits.
A study of the historical development of Western minor arts and the ramifications of reproducing them for the theatre. Students may not receive credit for both DRAM 280 and DRAM 480.
Gen Ed: VP, NA.
Grading status: Letter grade.

DRAM 484. Studies in Dramaturgy and Criticism. 3 Credits.
This seminar seeks to introduce students to the principles of arts criticism through study of the work of a variety of different critics, by distinguishing between the nature of criticism and reviewing the arts, and through the students' own practice of critical writing.
Grading status: Letter grade.

DRAM 486. Latin American Theatre. 3 Credits.
This course explores the historical and aesthetic development of Latin American theatre, focusing on particular factors that distinguish this theatre from the Western European tradition.
Gen Ed: VP, BN.
Grading status: Letter grade.

DRAM 488. United States Latino/a Theatre. 3 Credits.
Investigation of United States Latino/a theatre texts and performance practices as a discreet genre. United States Latino/a theatre will be distinguished from the dominant culture, and the diversity of forms and styles will be discussed.
Gen Ed: VP, CI.
Grading status: Letter grade.

DRAM 489. Carnivals and Festivals of the African Diaspora. 3 Credits.
This course will examine the role of Carnival in the African Diaspora, exploring its history, its many theatrical forms, and its fusion with European and indigenous American cultures. Through examining published and unpublished texts the development of the Carnival will be understood as an expression of freedom and cultural survival.
Gen Ed: VP.
Grading status: Letter grade.

DRAM 491. Issues in Arts Management. 3 Credits.
Arts management issues taught through analysis of case studies. Course includes management theories, organizational structures, and current issues.
Grading status: Letter grade.

DRAM 493. Theatre Management. 3 Credits.
Practicum in theatre management procedures and business of the theatre involving box office, audience development, research, publicity, operational, and contract procedures in regard to artists, technicians, managers, and producers. Students actively engage in management areas of the PlayMakers Repertory Company and productions of the Department of Dramatic Art.
Gen Ed: CI, EE- Academic Internship.
Grading status: Letter grade.

DRAM 566. Advanced Scene Design. 3 Credits.
Advanced study of the principles and practice of designing scenery for the theatre.
Requisites: Prerequisite, DRAM 466; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

DRAM 567. Costume Design II. 3 Credits.
Permission of the instructor. Practicum in costume design for the theatre, focusing on the requirements of professional theatre production and alternative costume design solutions.
Requisites: Prerequisite, DRAM 467.
Grading status: Letter grade.

DRAM 586. Costume Seminars I: Dyeing and Painting. 1-3 Credits.
Permission of the instructor. Taught in a four-semester rotation. May be repeated for credit for a total of six hours for undergraduates and 12 hours for graduate students. Series of topics in costume for use in design and production for the stage.
Requisites: Prerequisite, DRAM 192.
Grading status: Letter grade.

DRAM 587. Costume Seminars II: Millinery and Hair. 1-3 Credits.
Permission of the instructor. Advanced costume production techniques with an emphasis on millinery and hair design.
Grading status: Letter grade.

DRAM 588. Costume Seminars III: Masks and Armor. 1-3 Credits.
Permission of the instructor. Advanced costume production techniques with an emphasis on creating masks and armor.
Grading status: Letter grade.

DRAM 589. Costume Seminars IV: Decorative Arts. 1-3 Credits.
Permission of the instructor. Advanced costume production techniques with an emphasis on decorative arts.
Grading status: Letter grade.

DRAM 590. Advanced Special Topics in Dramatic Art. 0.5-3 Credits.
The study of a topic in dramaturgy, theatrical design, or theatrical production for advanced undergraduates and graduate students. Content and instructor will vary. May be repeated for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

DRAM 650. Costume Production I: Couture Methods. 0.5-3 Credits.
Advanced construction techniques in theatrical costuming with an emphasis on couture methods.
Requisites: Prerequisite, DRAM 192.
Grading status: Letter grade.

DRAM 666. Media in Performance. 3 Credits.
Required preparation, one performance studies course above COMM 400. Permission of the instructor for students lacking the required preparation. Project-based class where students acquire skills and critical approaches to create collaborative, professional, multimedia works.
Gen Ed: VP, EE- Performing Arts.
Grading status: Letter grade
Same as: COMM 666.

DRAM 667. Costume Design for the Technician. 1-3 Credits.
Permission of the instructor. Study of costume design for students concentrating in costume production.
Grading status: Letter grade.

DRAM 691H. Honors Project in Dramatic Art. 3 Credits.
Required preparation, 3.3 cumulative grade point average and permission of the department. The commencement of a special project (essay or creative endeavor), approved by the department, by a student who has been designated a candidate for undergraduate honors.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

DRAM 692H. Honors Project in Dramatic Art. 3 Credits.
Permission of the department. The completion of a special project by a student who has been designated a candidate for undergraduate honors.
Requisites: Prerequisite, DRAM 691H.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

DRAM 697. Senior Seminar. 3 Credits.
Close study of the interrelationships between theory and practice in contemporary world theatre, placing developments in their cultural contexts, and exploring current theatrical trends in an international framework.
Grading status: Letter grade.

Graduate-level Courses

DRAM 720. Acting I. 3 Credits.
Admission to the M.F.A. Acting program required. Intensive professional training for the actor. Must be taken fall and spring.
Grading status: Letter grade.

DRAM 721. Acting II. 3 Credits.
Admission to the second year of the M.F.A. Acting program required. Advanced professional training for the actor. Must be taken fall and spring.
Grading status: Letter grade.

DRAM 722. Voice I. 3 Credits.
Admission to the M.F.A. Acting program required. Development of the individual actor's voice and speech. Must be taken fall and spring.
Grading status: Letter grade.

DRAM 723. Voice II. 3 Credits.
Admission to the second year of the M.F.A. Acting program required. Expansion of the individual's vocal versatility in performance. Must be taken fall and spring.
Grading status: Letter grade.

DRAM 724. Movement I. 3 Credits.
Admission to the M.F.A. Acting program required. Development of the actor's body as an expressive instrument. Must be taken fall and spring.
Grading status: Letter grade.

DRAM 725. Movement II. 3 Credits.
Admission to the second year of the M.F.A. Acting program required. Advanced projects in movement. Special sessions in tumbling and stage combat. Must be taken fall and spring.
Grading status: Letter grade.

DRAM 726. Rehearsal and Performance I. 1-6 Credits.
Admission to the M.F.A. Acting program required. Rehearsal and performance of special ensemble projects. Must be taken fall and spring. May be repeated for credit.
Grading status: Letter grade.

DRAM 727. Rehearsal and Performance II. 1-6 Credits.
Admission to the second year of the M.F.A. Acting program required. Practical application of techniques in rehearsal and performance in studio and main stage production. Must be taken fall and spring. May be repeated for credit.
Grading status: Letter grade.

DRAM 728. Acting Practicum I. 3-12 Credits.
Admission to the third year of the M.F.A. Acting program required. Intense practicum as a member of the PlayMakers Repertory acting company. Preparation and presentation of assigned projects and work in departmental productions. Work in voice and movement as scheduled.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DRAM 750. Advanced Special Studies: Costume Production II: Advanced Couture Methods. 0.5-3 Credits.
Advanced construction techniques with an emphasis on advanced couture methods.
Grading status: Letter grade.

DRAM 752. Special Studies: Costume Production III: Tailoring. 0.5-3 Credits.
Costume graduates only. Advanced construction techniques with an emphasis on bodice development.
Grading status: Letter grade.

DRAM 760. Costume Construction III: Advanced Pattern Making. 1-3 Credits.
Study of pattern making in advanced shapes for the stage.
Requisites: Prerequisite, DRAM 473.
Grading status: Letter grade.

DRAM 762. Costume Construction IV: Advanced Pattern Making. 1-3 Credits.
Continued study of pattern making with advanced shapes for theatrical costumes.
Requisites: Prerequisite, DRAM 473.
Grading status: Letter grade.

DRAM 764. Costume Construction V: Creative Draping. 1-3 Credits.
Using combination of patternmaking and dressmaking techniques to achieve unusual shapes in theatrical costume.
Requisites: Prerequisites, DRAM 473, 474, 760, and 762.
Grading status: Letter grade.

DRAM 766. Digital Technology in Costume Production. 1-3 Credits.
Permission of instructor. Investigation of digital applications as applies to professional development for costume makers.
Grading status: Letter grade.

DRAM 770. Period Pattern I: Pre-Victorian. 1-3 Credits.
Permission of the instructor. Advanced study of historical pattern, costume crafts, or costume shop management through directed study. May be repeated for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

DRAM 772. Period Pattern II: Victorian. 1-3 Credits.
Costume graduates only. Study of historical pattern with an emphasis in Victorian era.
Grading status: Letter grade.

DRAM 774. Period Pattern III: 20th Century. 1-3 Credits.
Costume graduates only. Study of historical pattern with an emphasis in 20th century.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DRAM 776. Period Pattern IV: 19th and 20h Century Men's Wear. 1-3 Credits.
Costume graduates only. Study of sartorial arts with an emphasis in 19th to 20th centuries.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DRAM 780. Costume Management I: Supplies and Suppliers. 1-3 Credits.
Costume graduates only. Study of supplies and suppliers needed to produce theatrical costumes.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DRAM 782. Costume Management II: Budget Methods. 1-3 Credits.
Costume graduates only. Study of cost analysis for costume production.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DRAM 784. Costume Management III: Costume Shop Management. 1-3 Credits.
Costume graduates only. Overview of organization and personnel management for costume production.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DRAM 790. Costume Laboratory I. 3 Credits.
Admission to the M.F.A. Costume program required. Practical work in the costume shop. Must be taken fall and spring.
Grading status: Letter grade.

DRAM 791. Costume Laboratory II. 3 Credits.
Admission to the second year of the M.F.A. Costume program required. Advanced practical work in the costume shop. Must be taken fall and spring.
Grading status: Letter grade.

DRAM 792. Costume Laboratory III. 3 Credits.
Costume graduates only. Continuation of practical work through production assignments.
Grading status: Letter grade.

DRAM 793. Costume Laboratory IV. 3 Credits.
Costume graduates only. Continuation of practical work through production assignments.
Grading status: Letter grade.

DRAM 796. Costume Laboratory V. 1-3 Credits.
Admission to the third year of the M.F.A. Costume program required. Advanced practical work in the costume shop. Must be taken fall and spring.
Grading status: Letter grade.

DRAM 797. Costume Laboratory VI. 1-3 Credits.
Costume graduates only. Continuation of practical work through production assignments.
Grading status: Letter grade.

DRAM 799. Costume Program Internship. 3-6 Credits.
Intensive practicum in Costume Arts, with tutorial and class assignments on an individual basis as required. Fall or spring. May be repeated for credit.
Grading status: Letter grade.

DRAM 800. Technical Direction. 3-6 Credits.
Study of the technical and engineering problems in production and standard theatrical drafting and construction conventions. Must be taken fall and spring.
Requisites: Prerequisite, DRAM 491; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

DRAM 801. Technical Direction II. 3-6 Credits.
Technical graduates only. Additional study of technical and engineering problems in production.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DRAM 802. Advanced Technical Direction. 3-6 Credits.
Admission to the second year of the M.F.A. Technical Production program required. An advanced study of the management, technical, and engineering problems involved in theatrical production. Must be taken fall and spring.
Grading status: Letter grade.

DRAM 803. Advanced Technical Direction II. 1-6 Credits.
Admission to the third year of the M.F.A. Technical Production program required. An advanced study of the management, technical, and engineering problems involved in theatrical production. Must be taken fall and spring.
Grading status: Letter grade.

DRAM 805. Special Studies: Technical Production. 0.5-12 Credits.
Advanced scenic construction techniques leading to specific project or production responsibility in the area of scenic construction in Department of Dramatic Art productions and PlayMakers Repertory Company. A minimum of fifteen hours per week is required during the rehearsal period. Faculty evaluation at the close of the production. May be repeated for credit.
Requisites: Prerequisite, DRAM 192; Permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

DRAM 806. Technical Planning and Production. 3-6 Credits.
Admission into the third year of the M.F.A. Technical Production program required. Intensive practicum in production projects for departmental and PlayMakers Repertory Company productions. Must be taken fall and spring.
Grading status: Letter grade.

DRAM 813. Special Studies: Technical Production. 1-6 Credits.
Technical graduates only. Continuation of advanced scenic construction techniques with specific project or production responsibility in the area of scenic construction.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DRAM 814. Professional Theater Laboratory: Technical Production. 0.5-12 Credits.
Technical graduates only. Individual programs in scenic construction techniques.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DRAM 821. Advanced Lighting Design. 3 Credits.
Permission of the instructor. This course acquaints the student with professional practice in lighting design through lecture by faculty and visiting professionals and through evaluation of lighting designs executed by students and critiqued by professionals.
Grading status: Letter grade.

DRAM 830. Seminar in Professional Practice: Technical Production. 1-21 Credits.
Admission to the M.F.A. program in Technical Production required. An examination of professional theatre practice through contact with students, staff, faculty, and visiting artists in technical theatre. Generally taken fall and spring. May be repeated for credit.
Grading status: Letter grade.

DRAM 841. Design Technical Theatre Practicum I. 3-6 Credits.
Admission into the M.F.A. Technical program required. Practical work in scene shop. Must be taken fall and spring.
Grading status: Letter grade.

DRAM 842. M.F.A /Technical Theatre Practicum II. 1-6 Credits.
Technical graduates only. Continuation of practical work in scene shop.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DRAM 843. Design Technical Theatre Practicum II. 3-6 Credits.
Admission to the second year of the M.F.A. Technical program required. Advanced practical work in scene shop. Must be taken fall and spring.
Requisites: Prerequisite, DRAM 841.
Grading status: Letter grade.

DRAM 844. M.F.A./Technical Practicum IV. 3-6 Credits.
Continuation of advanced practical work in scene shop.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DRAM 845. Design Technical Internship. 3-6 Credits.
Intensive practicum in production projects for departmental and PlayMakers Repertory Company productions, with independent studies as assigned on an individual basis. May be repeated for credit.
Grading status: Letter grade.

DRAM 875. Seminar in Dramatic Literature. 1-3 Credits.
Admission to the M.F.A. program in any area required. An examination of the literature of the theatre in terms of dramatic construction, theory, and interpretation. May be repeated for credit.
Grading status: Letter grade.

DRAM 992. Master's Final Practicum. 3 Credits.

DEPARTMENT OF ECONOMICS (GRAD)

Contact Information

Department of Economics
Visit Program Website (http://econ.unc.edu/graduate)

Donna Gilleskie, Chair

The graduate program in the Department of Economics prepares students for teaching and research careers in the fields of econometrics, financial econometrics, health economics, international trade and development, labor economics, microeconomic theory/industrial organization, and macroeconomics/international finance. During the first year of the program, students concentrate on the core areas of econometrics, macroeconomics, and microeconomics. Later, each student chooses two fields of specialization within those mentioned. The department's objective is to provide students both with broad training in theory and econometrics and a chosen field of specialization.

A number of students supplement their study in economics at UNC–Chapel Hill with work in finance, statistics, mathematics, biostatistics, urban and regional studies, computer science, and operations research, along with courses at Duke University and North Carolina State University. Strong offerings in these and other related areas enhance the overall graduate training offered to students.

Fellowships and Assistantships

The department offers several fellowships and a number of research and teaching assistantships. All applicants to the Ph.D. program are considered for financial support, and most students enrolled in the Ph.D. program receive a stipend, tuition assistance, and health insurance from the Department of Economics or other sponsors for the first five years of the program. Detailed information regarding the fellowships, assistantships, and instructorships may be obtained from the director of graduate studies in economics or the department's Web site (https://econ.unc.edu).

Master of Science

Master's and doctoral students take the same courses in the first year; therefore, master's students must have competitive backgrounds similar to our doctoral students to do well in the courses.

The master's degree requires the following coursework:

Code	Title	Hours
ECON 710	Advanced Microeconomic Theory I	3
ECON 720	Advanced Macroeconomic Theory I	3
ECON 700	Basic Quantitative Techniques	3
One course in econometrics:		3
ECON 770	Introduction to Econometric Theory	
ECON 771	Econometrics	
ECON 870	Advanced Econometrics	
Two courses in a specialized field		6
Three electives		9
A research course:		
ECON 992	Master's (Non-Thesis)	3
Total Hours		30

Courses are to be selected in consultation with, and with the approval of, the director of graduate studies and the faculty in the field of specialization. In addition to coursework, a master of science student writes a research paper under the direction of the faculty advisor. The *Graduate School Handbook* describes the general requirements for the master's examinations and for the papers.

Doctor of Philosophy

A doctoral candidate must complete 15 Ph.D.-level courses and two semesters of the doctoral dissertation course (ECON 994). Unless otherwise specified by the faculty in the specialized field, at least 12 of the 15 courses must be from the Department of Economics. All courses must be approved by the director of graduate studies.

Courses in the Fundamentals of Economics

The following seven courses or their equivalents are required:

Code	Title	Hours
ECON 710	Advanced Microeconomic Theory I	3
ECON 711	Advanced Microeconomic Theory II	3
ECON 720	Advanced Macroeconomic Theory I	3
ECON 721	Advanced Macroeconomic Theory II	3
ECON 700	Basic Quantitative Techniques	3
ECON 770	Introduction to Econometric Theory	3
ECON 771	Econometrics	3
Total Hours		21

Courses in the Field of Specialization within Economics

Each student selects a specialized field from among the following fields within economics:

- Econometrics
- Financial Econometrics
- Health Economics
- Industrial Organization
- International/Macro
- Labor Economics
- Microeconomic Theory

At least three courses in the field of specialization are required. Students typically take courses in a complimentary field (e.g., finance courses when the focus is financial econometrics; health and labor; micro theory and industrial organization). The choice of courses is agreed upon by the student, the director of graduate studies, and faculty of the field.

Courses in Supporting Fields

The remaining courses are supporting courses chosen by the student in consultation with the director of graduate studies and other faculty members. The supporting courses may be within the field of specialization or in areas that complement the field of specialization.

Doctoral Exams and Dissertation

Students must pass qualifying exams in econometrics, macroeconomics, and microeconomics. Students are also required to produce and pass a field paper (students have the option of taking a field exam, but in recent years all students produce a field paper). The qualifiers are taken

in May and August of the student's first year. Students are allowed to skip one qualifying exam if their course sequence grades are high enough. Students have two opportunities to pass each of the exams they take and may petition the appeals committee for permission to take an exam for the third time.

The *Graduate School Handbook* describes the requirements for the doctoral oral exam, doctoral dissertation, and final oral defense of the dissertation. The doctoral oral exam includes an evaluation of the thesis prospectus.

The general regulations of The Graduate School apply to students receiving graduate degrees in economics from the University of North Carolina at Chapel Hill.

Professors

Gary A. Biglaiser, Microeconomic Theory, Industrial Organization **Anusha Chari,** International Finance, Open-Economy Macroeconomics **Patrick J. Conway,** Economic Development, International Economics **Eric Ghysels,** Econometrics, Financial Econometrics **Donna B. Gilleskie,** Health Economics, Econometrics, Labor **David K. Guilkey,** Econometrics **Peter Hansen,** Econometrics, Time Series, Financial Econometrics **Jonathan B. Hill,** Econometric Theory, Time Series Econometrics, Statistics **Steven S. Rosefielde,** Comparative Economic Systems

Associate Professors

Luca Flabbi, Labor Economics, Applied Econometrics, Structural Estimation **Neville R. Francis,** Macroeconomics, Time Series **Jane Cooley Fruehwirth,** Social Economics, Economics of Education, Public Economics **Lutz A. Hendricks,** Macroeconomics, Human Capital, Economic Growth, Wealth Inequality **Brian McManus,** Empirical Industrial Organization, Applied Microeconomics, Public Economics **Peter Norman,** Microeconomics, Public Economics **William R. Parke,** Econometrics, Macroeconomics **Sergio O. Parreiras,** Game Theory, Microeconomics **Klara Peter,** Labor, Development, Applied Microeconomics, Public Policy **Boone A. Turchi,** Demography **Jonathan Williams,** Applied Econometrics, Industrial Organization, Applied Microeconomics **Andrew Yates,** Environmental Economics

Assistant Professors

Simon Alder, Growth and Development, Applied Econometrics **Andrii Babii**, Econometrics **Qing Gong**, Public Economics, Health Economics **Andrés Hincapié,** Labor, Health, Entrepreneurship **Ju Hyun Kim,** Econometrics **Fei Li,** Applied Microeconomic Theory, Industrial Organization, Labor Economics **Luca Maini**, Industrial Organization, Health Economics **Stanislav Rabinovich,** Macroeconomics, Labor Economics **Can Tian**, Macroeconomics, Searching and Matching Theory **Valentin Verdier,** Econometrics **Kyle Woodward,** Microeconomic Theory

Fixed-term Faculty

Michael D. Aguilar, Financial Econometrics, Applied Macroeconomics, Econometric Theory **Rita A. Balaban,** Applied Microeconomics, Economic Education **Bernard E. Bell**, Entrepreneur in Residence **Burton B. Goldstein,** University Entrepreneur in Residence **Stephen W. Lich,** Labor Economics, Public Economics, Applied Microeconomics, Household and Family Economics **Michelle Sheran-Andrews,** Microeconomics, Labor Economics, Economic Statistics **Kalina Staub,** Labor Economics, Gender Economics, Economics Education, Household and Family Economics **Geetha Vaidyanathan,** Macroeconomics, Statistics, Monetary Economics, International Economics

Professors Emeriti

John Akin
Dennis R. Appleyard
Arthur Benavie
Stanley W. Black
Ralph Byrns
William A. Darity Jr.
Alfred J. Field Jr.
Richard T. Froyen
A. Ronald Gallant
Dell B. Johannesen
James L. Murphy
Michael K. Salemi
John Stewart
Vincent J. Tarascio
Helen V. Tauchen
Roger Waud
James A. Wilde
Xiaodong Wu

ECON

Advanced Undergraduate and Graduate-level Courses

ECON 400. Introduction to Statistics and Econometrics. 3 Credits.
Comprehensive introduction to statistics, including descriptive statistics and statistical graphics, probability theory, distributions, parameter estimation, hypothesis testing, simple and multiple regression, and use of powerful statistical estimation software. This course includes a substantial introduction to basic econometrics. Honors version available
Requisites: Prerequisites, ECON 101, STOR 155, and one of MATH 152, 231, STOR 112, or 113.
Gen Ed: QI.
Grading status: Letter grade.

ECON 400H. Introduction to Statistics and Econometrics. 3 Credits.
Comprehensive introduction to statistics, including descriptive statistics and statistical graphics, probability theory, distributions, parameter estimation, hypothesis testing, simple and multiple regression, and use of powerful statistical estimation software. This course includes a substantial introduction to basic econometrics.
Requisites: Prerequisites, ECON 101, STOR 155, and one of MATH 152, 231, STOR 112, or 113.
Gen Ed: QI.
Grading status: Letter grade.

ECON 410. Intermediate Theory: Price and Distribution. 3 Credits.
The determination of prices and the distribution of income in a market system. Students may not receive credit for both ECON 310 and 410. Honors version available
Requisites: Prerequisites, ECON 101, and one of MATH 152, 231, STOR 112, or 113.
Grading status: Letter grade.

ECON 410H. Intermediate Theory: Price and Distribution. 3 Credits.
The determination of prices and the distribution of income in a market system. Students may not receive credit for both ECON 310 and 410.
Requisites: Prerequisites, ECON 101, and one of MATH 152, 231, STOR 112, or 113.
Grading status: Letter grade.

ECON 411. Game Theory. 3 Credits.
Game theory is the study of strategic interactions, where the best choice for the individual depends directly on what other individuals are doing. This course formalizes strategic interactions as mathematical games. Students examine the concept of a strategy, examine what it means to be rational or irrational, and define solution concepts that correspond to different assumptions.
Requisites: Prerequisite, ECON 410 with a grade of C or better, or COMP 550, POLI 287, or POLI 288; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

ECON 415. Market Failures. 3 Credits.
This course is a continuation of ECON 410. While ECON 410 dealt with basic price theory and market successes, this course will mainly cover market failures. In particular, we will first explore the notion of efficiency and equity in a partial and general equilibrium framework. We will then add asymmetric information, behavioral economics, externalities, public goods, and market power to models learned in ECON 101 and ECON 410 to analyze the effects on economic efficiency.
Requisites: Prerequisite, ECON 410 with a grade of C or better.
Grading status: Letter grade.

ECON 420. Intermediate Theory: Money, Income, and Employment. 3 Credits.
An introduction to contemporary macroeconomic concepts and analysis. Topics include the level, fluctuations, and growth of national income, and monetary and fiscal policies designed to achieve economic goals. Students may not receive credit for both ECON 320 and ECON 420. Honors version available
Requisites: Prerequisite, ECON 410 with a grade of C or better.
Grading status: Letter grade.

ECON 420H. Intermediate Theory: Money, Income, and Employment. 3 Credits.
An introduction to contemporary macroeconomic concepts and analysis. Topics include the level, fluctuations, and growth of national income, and monetary and fiscal policies designed to achieve economic goals. Students may not receive credit for both ECON 320 and ECON 420.
Requisites: Prerequisite, ECON 410 with a grade of C or better.
Grading status: Letter grade.

ECON 423. Financial Markets and Economic Fluctuations. 3 Credits.
An examination of financial institutions and markets, their role in economic conditions, and the use of macroeconomic policies in affecting those conditions. Students may not receive credit for both ECON 320 and ECON 423. Honors version available
Requisites: Prerequisites, ECON 400, 410, and 420; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade.

ECON 423H. Financial Markets and Economic Fluctuations. 3 Credits.
An examination of financial institutions and markets, their role in economic conditions, and the use of macroeconomic policies in affecting those conditions. Students may not receive credit for both ECON 320 and ECON 423.
Requisites: Prerequisites, ECON 400, 410, and 420; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade.

ECON 425. Financial Economics. 3 Credits.
How does a risk averse individual allocate their funds? Students begin by defining and measuring risk, making connection to their microeconomics training. They then develop and use asset pricing models to explore the interplay between risk and return. Finally, students use these tools to develop a mean-variance optimal portfolio allocation. Students are introduced to basic quantitative tools and participate in myriad practical applications.
Requisites: Prerequisites, ECON 400, 410, and 420; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade.

ECON 430. Economic Development of the United States. 3 Credits.
This course parallels ECON 330 but is designed for students with a higher level of theoretical preparation. Students may not receive credit for both ECON 330 and ECON 430.
Requisites: Prerequisites, ECON 400, 410, and 420; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade.

ECON 434. History of Economic Doctrines. 3 Credits.
A survey of the fundamental forms of economic thought from the scholastics through Keynes.
Requisites: Prerequisites, ECON 101, 400, and 410; a grade of C or better in ECON 400 and 410 is required.
Gen Ed: SS.
Grading status: Letter grade.

ECON 440. Analysis of Public Finance. 3 Credits.
Application of economic analysis to the taxing and spending functions of government. Students may not receive credit for both ECON 340 and ECON 440.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade.

ECON 445. Industrial Organization. 3 Credits.
The course covers the causes and consequences of firms' strategic behavior, focusing on situations in which firms have market power. The main analytical tools are microeconomic theory and game theory. Topics covered include: pricing, product design, imperfect competition, collusion and cartels, firm-to-firm supply relationships, mergers, and antitrust policy. Students may not receive credit for both ECON 345 and 445.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade.

ECON 450. Health Economics: Problems and Policy. 3 Credits.
Economic analysis applied to problems and public policy in health care.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

ECON 454. Economics of Population. 3 Credits.
Analysis of economic-demographic interrelations including demographic analysis, population and economic growth and development, economic models of fertility and migration, and population policy.
Requisites: Prerequisites, ECON 400 and 310 or 410; a grade of C or better in ECON 400, and 310 or 410 is required; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

ECON 455. Environmental Economic Theory. 3 Credits.
A rigorous economic analysis of environmental issues, with particular emphasis on the problem of designing appropriate institutions and regulations under private information and the interaction between economic and ecological systems. Topics include emission fees and marketable permits, pollution models, carbon regulation, and ecosystem service markets.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade.

ECON 460. International Economics. 3 Credits.
An introduction to international trade, the balance of payments, and related issues of foreign economic policy.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade
Same as: EURO 460, PWAD 460.

ECON 461. European Economic Integration. 3 Credits.
Economic and political aspects of European economic integration, the EC customs union, barriers to integration, convergence vs. divergence of inflation rates and income levels, enlargement of the EC.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better is required in ECON 400 and 410; permission of the instructor for students lacking the prerequisites.
Gen Ed: SS, GL.
Grading status: Letter grade.

ECON 465. Economic Development. 3 Credits.
An introduction to the economic characteristics and problems of the less developed countries and to the theories and policies applicable to the developing economy.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required; permission of the instructor for students lacking the prerequisites.
Gen Ed: SS, GL.
Grading status: Letter grade.

ECON 468. Principles of Soviet and Post-Soviet Economic Systems. 3 Credits.
Study of the principles, design, organization, and performance of state-controlled economies relying on planning or regulated markets, with an emphasis on continuity and post-communist transition.
Requisites: Prerequisites, ECON 400, and 310 or 410; a grade of C or better in ECON 400, and 310 or 410 is required.
Grading status: Letter grade.

ECON 469. Asian Economic Systems. 3 Credits.
This course provides an in-depth examination of the behavioral principles and performances of five core Asian economic systems: Japan, China, Taiwan/South Korea, North Korea and Thailand.
Requisites: Prerequisites, ECON 400, and 310 or 410; a grade of C or better in ECON 400, and 310 or 410 is required.
Grading status: Letter grade
Same as: ASIA 469.

ECON 470. Econometrics. 3 Credits.
Econometrics is the application of statistical methods and economic theory to the problem of identifying, estimating, and testing economic models. This course covers concepts and methods used in empirical economic research. Students will learn how to conduct and how to critique empirical studies in economics. Honors version available
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Gen Ed: QI.
Grading status: Letter grade.

ECON 470H. Econometrics. 3 Credits.
Econometrics is the application of statistical methods and economic theory to the problem of identifying, estimating, and testing economic models. This course covers concepts and methods used in empirical economic research. Students will learn how to conduct and how to critique empirical studies in economics.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Gen Ed: QI.
Grading status: Letter grade.

ECON 480. Labor Economics. 3 Credits.
An introduction to the field of labor economics with emphasis on how the interactions between firms and workers influence wages, employment, unemployment, and inflation. Students may not receive credit for both ECON 380 and ECON 480.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade.

ECON 485. Economics of Sports. 3 Credits.
Applies microeconomic techniques to professional and amateur sports through the examination of real-world issues and problems. Employs statistical analysis to test some of the theoretical predictions of the models in the sports literature.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Gen Ed: QI.
Grading status: Letter grade.

ECON 486. Gender and Economics. 3 Credits.
This course uses basic microeconomic theory and recent empirical studies to examine the causes and consequences of gender differences in economic outcomes. Topics covered may include family formation and dissolution, fertility decisions, human capital investment, labor force participation, the gender earnings gap, and occupational choice.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Gen Ed: SS, CI.
Grading status: Letter grade.

ECON 490. Special Topics. 1-3 Credits.
Topic varies from semester to semester.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

ECON 493. Practicum in Quantitative Financial Economics. 1 Credit.
This practicum provides students the opportunity to implement and test the models being developed in ECON 525. Students will work with multiple data sources and programming platforms, and engage in a series of practical experiments using live market information.
Requisites: Prerequisites, ECON 400, 410, and 425; a grade of C or better in ECON 400 and 410 is required; corequisite, ECON 525.
Grading status: Letter grade.

ECON 495. Research Course. 1-3 Credits.
Topic varies from semester to semester. Permission of the instructor.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ECON 496. Independent Study. 1-3 Credits.
Permission of the director of undergraduate studies. Readings and research under the supervision of a member of the department.
Requisites: Prerequisite, ECON 410; a grade of C or better in ECON 410 is required.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

ECON 510. Advanced Microeconomic Theory. 3 Credits.
A treatment of topics in microeconomic theory not normally covered in ECON 410. Honors version available
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ECON 510H. Advanced Microeconomic Theory. 3 Credits.
A treatment of topics in microeconomic theory not normally covered in ECON 410.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ECON 511. Advanced Game Theory in Economics. 3 Credits.
Topics in noncooperative and cooperative game theory are covered, along with a selection of applications to economics in areas such as industrial organization, international trade, public finance, and general equilibrium. Honors version available
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better is required; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

ECON 511H. Advanced Game Theory in Economics. 3 Credits.
Topics in noncooperative and cooperative game theory are covered, along with a selection of applications to economics in areas such as industrial organization, international trade, public finance, and general equilibrium.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better is required; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

ECON 520. Advanced Macroeconomic Theory. 3 Credits.
This course will emphasize theoretical and empirical topics such as growth, labor search, Phillips curves, stagflation, and optimal government policy. Honors version available
Requisites: Prerequisites, ECON 400, 410, and 420; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade.

ECON 520H. Advanced Macroeconomic Theory. 3 Credits.
This course will emphasize theoretical and empirical topics such as growth, labor search, Phillips curves, stagflation, and optimal government policy.
Requisites: Prerequisites, ECON 400, 410, and 420; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade.

ECON 525. Advanced Financial Economics. 3 Credits.
Building upon the foundation developed in ECON 425, students take part in each of the five steps of the asset allocation process (explore, explain, predict, allocate, and protect) by addressing the following questions. How does the modern financial economist acquire, clean, and transform data? What drives asset returns? Can we forecast returns? How do we form a portfolio in the presence of risk? How do we assess and manage risk?
Requisites: Prerequisites, ECON 400, 410, and 425; a grade of C or better in ECON 400 and 410 is required; corequisite, ECON 493.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ECON 540. Advanced Public Finance. 3 Credits.
Selected topics in taxation, public expenditures, and governmental transfer programs.
Requisites: Prerequisites, ECON 400, 410, and 340 or 440; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade.

ECON 545. Advanced Industrial Organization and Social Control. 3 Credits.
Theory of market failure and its relationship to antitrust and regulatory policy; exploration of empirical literature of industrial organization; current issues in social control.
Requisites: Prerequisites, ECON 400, 410, and 445; a grade of C or better in ECON 400 and 410 is required.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ECON 550. Health Economics. 3 Credits.
Course will equip students with tools used by economists to navigate health-related markets. Topics include the demand for and production of health, the demand for and supply of medical care, and the demand for and supply of health insurance.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Gen Ed: SS, EE- Mentored Research, QI.
Grading status: Letter grade.

ECON 551. Economics of Education. 3 Credits.
This course will apply and build on existing economic theory and econometric skills to study education policy. Topics include education production, teacher quality, and investment in education, with a particular emphasis on recent policies aimed at reducing inequality. Students will learn how to conduct and how to critique empirical studies in economics of education.
Requisites: Prerequisites, ECON 400 and 410;Co-requisite, ECON 470 or 570, or permission of instructor.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

ECON 560. Advanced International Economics. 3 Credits.
Analysis and interpretation of selected problems and policy issues. Content varies, but attention is given to such topics as trade barriers, trade patterns, floating exchange rates, and international monetary policy.
Requisites: Prerequisites, ECON 400, 410, and 460; a grade of C or better in ECON 400 and 410 is required.
Gen Ed: SS, EE- Mentored Research, GL.
Grading status: Letter grade.

ECON 570. Applied Econometric Analysis. 3 Credits.
Statistical methods in the construction, estimation, testing, and application of linear economic models; computer programs and interpretation of their output in empirical analysis of common economic theories. Honors version available
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Gen Ed: SS, EE- Mentored Research, QI.
Grading status: Letter grade.

ECON 570H. Applied Econometric Analysis. 3 Credits.
Statistical methods in the construction, estimation, testing, and application of linear economic models; computer programs and interpretation of their output in empirical analysis of common economic theories.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Gen Ed: SS, EE- Mentored Research, QI.
Grading status: Letter grade.

ECON 571. Advanced Econometrics. 3 Credits.
Econometric models and inference methods for program evaluation. Topics include self-selection models, heterogeneous treatment effect models, differences-in-differences methods, and regression discontinuity designs.
Requisites: Prerequisites, ECON 400, 410, and ECON 470 or 570; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade.

ECON 575. Applied Time Series Analysis and Forecasting. 3 Credits.
Econometric techniques for time series data. Topics include ARMA models, forecasting, nonstationarity, conditional heteroskedasticity, and multiple equation models.
Requisites: Prerequisites, ECON 400, 410, and 420; a grade of C or better in ECON 400 and 410 is required; permission of the instructor for students lacking the prerequisites.
Gen Ed: SS, QI.
Grading status: Letter grade.

ECON 580. Advanced Labor Economics. 3 Credits.
A theoretical and empirical analysis of current social problems involving individuals and their jobs. Included are such topics as poverty, discrimination, and working conditions.
Requisites: Prerequisites, ECON 400, 410, and 480; a grade of C or better in ECON 400 and 410 is required.
Grading status: Letter grade.

ECON 586. Economics of the Family. 3 Credits.
Analyzes the family with respect to the marriage market; divorce; reproductive behavior; the baby black market; intra-family allocation of goods, time, and power; labor supply; migration; and family policy.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

ECON 590. Special Topics. 1-3 Credits.
Topic varies from semester to semester.
Requisites: Prerequisites, ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

ECON 595. Research Course. 1-3 Credits.
Topic varies from semester to semester.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ECON 596. Independent Study. 1-3 Credits.
Permission of the director of undergraduate studies. Readings and research under the supervision of a member of the department.
Requisites: Prerequisite, ECON 410; a grade of C or better in ECON 410 is required.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

ECON 691H. Honors Course. 3 Credits.
Permission of the instructor. Readings in economics and beginning of directed research on an honors thesis. Required of all candidates for graduation with honors in economics.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ECON 692H. Honors Course. 3 Credits.
Permission of the instructor. Completion of an honors thesis under the direction of a member of the faculty. Required of all candidates for graduation with honors in economics.
Requisites: Prerequisite, ECON 691H .
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ECON 698. Philosophy, Politics, and Economics: Capstone Course. 3 Credits.
Permission of the department. This capstone course advances PHIL 384, focusing on such theoretical and philosophical issues as the analysis of rights or distributive justice and the institutional implications of moral forms.
Requisites: Prerequisite, PHIL 384.
Grading status: Letter grade
Same as: PHIL 698, POLI 698.

Graduate-level Courses

Graduate standing in economics or permission of the director of graduate studies in economics is required for all courses numbered 700 or higher.

ECON 700. Basic Quantitative Techniques. 3 Credits.
Topics from linear algebra, calculus, linear and nonlinear programming, and the theory of difference and differential equations with applications to economics.
Grading status: Letter grade.

ECON 701. Analytical Methods for Mathematical Economics. 3 Credits.
Covers mathematical bases for economic analysis. Proofs, real analysis, functional analysis, convexity, fixed points, and modularity.
Grading status: Letter grade.

ECON 710. Advanced Microeconomic Theory I. 3 Credits.
Consumer and producer theory, expected utility, perfect competition and monopoly, introduction to general equilibrium and welfare economics.
Requisites: Pre- or corequisites, ECON 410 and 700.
Grading status: Letter grade.

ECON 711. Advanced Microeconomic Theory II. 3 Credits.
General equilibrium and welfare economics, game theory and oligopoly, information economics.
Requisites: Prerequisite, ECON 710.
Grading status: Letter grade.

ECON 720. Advanced Macroeconomic Theory I. 3 Credits.
Keynesian and classical equilibrium models; the neo-Keynesian synthesis; monetarist and other alternative analytic frameworks.
Requisites: Prerequisite, ECON 420.
Grading status: Letter grade.

ECON 721. Advanced Macroeconomic Theory II. 3 Credits.
Growth models, general equilibrium approach to monetary theory; input-output; disequilibrium theory; extensions of Keynesian and classical models.
Requisites: Prerequisite, ECON 720.
Grading status: Letter grade.

ECON 770. Introduction to Econometric Theory. 3 Credits.
Probability theory, expectation, conditional expectation, modes of convergence, limit and interchange theorems, and the asymptotics of maximum likelihood, generalized method of moments and efficient method of moments.
Grading status: Letter grade.

ECON 771. Econometrics. 3 Credits.
Standard first year course in econometric theory and methods. Topics include least squares and maximum likelihood, asymptotic theory, classic inference, GMM, seemingly unrelated regression, endogeneity bias, and multi-stage least squares.
Requisites: Prerequisite, ECON 770.
Grading status: Letter grade.

ECON 799. Experimental. 1-3 Credits.
Varied.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ECON 805. Seminar in Teaching Methods in Economic for TAs. 1-3 Credits.
Covers skills in lecturing, encouraging student participation and active learning, writing exams, planning and evaluating courses. Students design and teach a module that includes class discussion and hands-on learning. Targeted to beginning teaching assistants.
Grading status: Letter grade.

ECON 806. Seminar in Teaching Methods in Economics. 1-3 Credits.
Doctoral candidacy in economics or permission of the instructor. Covers skills in lecturing, encouraging student participation and active learning, writing exams, planning and evaluating courses. Students design and teach a module that includes class discussion and hands-on learning. Targeted to those teaching independent sections.
Grading status: Letter grade.

ECON 810. Game Theory I. 3 Credits.
Noncooperative games in strategic and extensive form, with perfect and imperfect information. Other topics from: information economics, mechanism design, auctions, repeated games, bargaining, bounded rationality, learning, evolutionary games, cooperative games.
Requisites: Prerequisite, ECON 710 and 711; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

ECON 811. Game Theory II. 3 Credits.
This course is a continuation of ECON 810. Topics covered will be chosen from those listed, but not covered in ECON 810.
Requisites: Prerequisite, ECON 810; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

ECON 820. Monetary Theory. 3 Credits.
This course focuses on econometric testing of macroeconomic theories. Topics will vary from year to year, but will include for example, modern theories of short-run fluctuations: sources of business cycle and the evolution of income, employment, interest rate, and prices, monetary and fiscal policy theories in the presence of real and nominal rigidities.
Grading status: Letter grade.

ECON 821. Topics in Macroeconomics II. 1-3 Credits.
This course covers topics in macroeconomics such as economic growth, human capital, wealth inequality, and trade. The precise topics depend on the instructor.
Grading status: Letter grade.

ECON 840. Advanced Finance: Expenditure. 3 Credits.
Analysis of market failure and reasons for public spending, cost-benefit analysis and program budgeting, public decision making, redistribution and fiscal equity, intergovernmental transfers.
Grading status: Letter grade.

ECON 841. Advanced Public Finance: Revenues. 3 Credits.
Criteria for judging tax structures, incidence and impact of taxation, user charges and debt finance, intergovernmental coordination, and macroeconomic effects.
Requisites: Prerequisite, ECON 840; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

ECON 845. Advanced Business Organization and Social Control. 3 Credits.
Permission of the instructor. Extensive readings in the literature are required. Emphasis is placed upon the role of economic analysis in dealing with problems in this field.
Grading status: Letter grade.

ECON 846. Theoretical Industrial Organization. 3 Credits.
This course covers theoretical industrial organization (IO). Topics typically covered include: price discrimination, product bundling, foreclosure analysis, vertical relations between firms, two-sided markets, dynamic games, and markets with switching costs and network effects.
Grading status: Letter grade.

ECON 847. EMPIRICAL INDUSTRIAL ORGANIZATION I. 3 Credits.
This course covers empirical methods in industrial organization (IO), and is typically presented as the first part of a two-course empirical IO sequence. Topics typically covered include: demand estimation, information issues, vertical relations between firms, and productivity.
Grading status: Letter grade.

ECON 848. EMPIRICAL INDUSTRIAL ORGANIZATION II. 3 Credits.
This course covers empirical methods in industrial organization (IO), and is typically presented as the second part of a two-course empirical IO sequence. Topics typically covered include: static games of complete and incomplete information, dynamic demand, dynamic games, and auctions.
Grading status: Letter grade.

ECON 850. Health Economics. 3 Credits.
Measurement and modeling of the demand for medical care, the demand for and supply of health insurance, and the incorporation of health, medical care, and health insurance in determining both short and long run labor supply.
Requisites: Prerequisites, ECON 710 and 771; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

ECON 851. Health Economics for Developing Countries. 3 Credits.
Major topics are: how health and development are related, the demand for health services, cost-benefit and cost-effectiveness analysis, and methods for financing health care in developing, resource-constrained nations.
Requisites: Prerequisites, ECON 710 and 771; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

ECON 855. Economics and Population. 3 Credits.
Analysis of economic-demographic interrelationships including: population and economic development; population, environmental decay, and zero population growth; models of fertility, migration, and spatial organization; population policy. (Not regularly offered.)
Requisites: Prerequisite, graduate standing in economics or permission of the instructor.
Grading status: Letter grade.

ECON 860. Theory of International Trade. 3 Credits.
Graduate standing in economics or permission of the instructor. The theory of international values; comparative advantage and the gains from trade; commercial policy.
Grading status: Letter grade.

ECON 861. International Monetary Economics. 3 Credits.
Graduate standing in economics or permission of the instructor. Analysis of the international monetary system; exchange rates; the process of adjustment in the balance of payments.
Grading status: Letter grade.

ECON 865. Economic Development: Theory and Policy. 3 Credits.
Permission of the instructor. Intensive study of the development processes and problems of the less developed countries, with emphasis on theories of growth and development, internal and external policies, and planning strategies.
Grading status: Letter grade.

ECON 866. Selected Topics in Economic Development and Development Planning. 3 Credits.
Examination of various topics in economic progress of the less developed countries, with special emphasis on the role of international issues.
Requisites: Prerequisite, ECON 865.
Grading status: Letter grade.

ECON 867. Comparative Economic Systems. 3 Credits.
This course focuses on alternative theories of United States capitalism, French indicative planning, Yugoslavian worker-managed market socialism, Soviet central planning, and the Chinese worker-controlled decentralized planning model.
Grading status: Letter grade.

ECON 868. Socialist Economic Thought in Historical Perspective. 3 Credits.

ECON 870. Advanced Econometrics. 3 Credits.
ECON 870 constitutes a one-semester treatment of the fundamental theory of econometrics. Topics covered include asymptotic distribution theory, linear and nonlinear models, specification testing techniques, and simultaneous equations models.
Requisites: Prerequisites, ECON 770, 771, and MATH 547.
Grading status: Letter grade.

ECON 871. Time Series Econometrics. 3 Credits.
Covers stationary univariate and multivariate time series models, spectral analysis methods, nonstationary models with time trends, unit roots and cointegration, and special topics such as conditional volatility, the Kalman filter, and changes of regime.
Requisites: Prerequisite, ECON 870.
Grading status: Letter grade.

ECON 872. Nonlinear Econometric Methods. 3 Credits.
Density estimation, nonparametric regression, neural nets, nonlinear regression, generalized method of moments, seminonparametric time series, estimating stochastic differential equations and nonlinear latent variables.
Requisites: Prerequisite, ECON 870.
Grading status: Letter grade.

ECON 873. Microeconometrics. 3 Credits.
Limited dependent variable models such as binary outcome models, multinomial outcome models, and censored and truncated outcome models. Count data models. Duration models. Panel data analysis.
Requisites: Prerequisite, ECON 870.
Grading status: Letter grade.

ECON 876. Advanced Topics in Empirical Finance. 3 Credits.
This course will cover a selected list of current empirical research topics in finance and related econometric methods.
Requisites: Prerequisite, ECON 871.
Grading status: Letter grade.

ECON 877. Foundations for Continuous Time Asset Pricing. 3 Credits.
This course introduces students to mathematical foundations and economic interpretation of the main probabilistic tools (stochasatic calculus, martingale methods) in continuous time finance.
Requisites: Prerequisites, STOR 634 and 635.
Grading status: Letter grade.

ECON 880. Labor Economics I. 3 Credits.
Analysis of short- and long-run aspects of supply and demand of labor, including empirical analysis of labor force behavior of males, females, blacks, and whites. Microeconomic effects of marriage, fertility, mobility on labor supply, and macroeconomic effects of unemployment on inflation.
Requisites: Prerequisite, ECON 710; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

ECON 881. Labor Economics II. 3 Credits.
This course covers a range of topics in labor economics, with a unifying theme of understanding how economics informs policies for alleviating inequality. Topics include social interactions, education, early childhood intervention, and discrimination.
Grading status: Letter grade.

ECON 882. Topics in Labor Economics-Dynamics and Search. 3 Credits.
Topics in labor economics characterized by an attention to dynamic considerations, with emphasis on search frictions.
Grading status: Letter grade.

ECON 883. Search Theory. 3 Credits.
Search frictions have long been recognized as a reason for the existence of labor and capital unemployment. It is also a leading explanation for the price and wage dispersion, a standard tool in monetary economics. This course covers a number of widely used models of search frictions, and discusses how they relate to imperfect information about individual or match-specific characteristics and or coordination problems.
Grading status: Letter grade.

ECON 890. Seminar. 1-15 Credits.
Permission of the instructor. Individual research in a special field under direction of a member of the department.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

ECON 892. Research Practicum. 1-3 Credits.
Students complete a pre-approved internship under the direction of a faculty member and the director of graduate studies. A paper summarizing the research work is required.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ECON 896. Independent Study. 1-3 Credits.
Varied.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

ECON 899. Experimental. 1-3 Credits.
Varied.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ECON 900. Dissertation Workshop: Topics in Economics. 1-3 Credits.
Permission of the instructor. Discussion of current research with topics varying from year to year. Oral and written reports on dissertation research. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ECON 910. Dissertation Workshop in Microeconomic Theory. 1-3 Credits.
Permission of the instructor. Discussion of current research in microeconomic theory and industrial organization. Oral and written reports on dissertation research. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ECON 920. Dissertation Workshop in Macroeconomics. 1-3 Credits.
Permission of the instructor. Discussion of current research in macroeconomics and monetary economics. Oral and written reports on dissertation research. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ECON 958. Seminar in Population. 3 Credits.
Graduate standing in economics required. For advanced population students, this course addresses the newest and most advanced economic demography literature.
Grading status: Letter grade.

ECON 960. Dissertation Workshop in International and Development Economics. 1-3 Credits.
Permission of the instructor. Discussion of current research in international and development economics. Oral and written reports on dissertation research. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ECON 966. Seminar in Economic Development. 1-3 Credits.
This course is an introduction to the literature and research methods of economic development and transition economies. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ECON 968. Seminar in Soviet Economics. 3 Credits.
Permission of the instructor. Studies of selected problems of the Soviet economy and related aspects of Soviet economic thought. Seminar members are expected to present reports on assigned research topics.
Grading status: Letter grade.

ECON 970. Dissertation Workshop in Econometrics and Financial Econometrics. 1-3 Credits.
Permission of the instructor. Discussion of current research in econometrics and financial econometrics. Oral and written reports on dissertation research. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ECON 971. Research in Econometrics. 3 Credits.
The course introduces students to theoretical and applied research topics in econometrics. May be repeated for credit.
Grading status: Letter grade.

ECON 981. Seminar in Labor. 1-3 Credits.
The course introduces students to research topics in labor economics. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ECON 985. Dissertation Workshop in Applied Microeconomics. 1-3 Credits.
Permission of the instructor. Discussion of current research in applied microeconomics. Student presentations of dissertation and other research. Oral and written reports on dissertation research.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ECON 990. Special Topics. 1-3 Credits.

ECON 992. Master's (Non-Thesis). 3 Credits.

ECON 994. Doctoral Research and Dissertation. 3 Credits.

SCHOOL OF EDUCATION (GRAD)

Contact Information

School of Education
Visit Program Website (http://soe.unc.edu)

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The School of Education, in keeping with the general goals of the University of North Carolina at Chapel Hill, embraces a threefold mission of teaching, research, and service. With these purposes in mind, the school's graduate programs are designed to meet the needs of professional educators who seek to further their knowledge, understanding, and skills relating to educational processes. These professionals vary in their career orientations. Some are employed in (or wish to become employed in) educational institutions, and others, in agencies and organizations performing noninstructional educational functions.

The research mission involves continuing inquiry into the development of knowledge of the teaching-learning process; human development; the organization of schools and educational agencies; the historical, social, and philosophical bases for educational institutions; and the processes of program development and implementation.

The service mission provides public and private institutions and agencies with the benefits of research and consultation, thereby enhancing these institutions and agencies' ability to satisfy their educational objectives.

The teaching mission involves the faculty and graduate students in applying the knowledge base in field settings and translating it into coursework.

The School of Education has attempted to present correct information as of the publication this catalog. However, this information does not establish a contractual relationship, and the school reserves the right to alter any statement when review is complete. Therefore, applicants should contact the School of Education to obtain updated information on programs prior to final application procedures.

Licensure

The School of Education recommends eligible graduates of its approved education programs to the North Carolina State Department of Public Instruction for licensure as teachers, school administrators, school counselors, school psychologists, and curriculum and instruction specialists. In addition, the school recommends licensure candidates from the following University degree programs: the School of Information and Library Science (for school media coordinators), the School of Social Work (for school social workers), and graduates of the speech-language pathology program in the Division of Speech and Hearing Sciences.

Initial professional licensure is recommended for master of arts in teaching graduates at the initial level and for master of education in school counseling at the advanced specialist level. The master's program for experienced teachers provides the opportunity for practicing teachers to achieve the advanced competencies of master's-level licensure in a variety of specialty areas. School administrators are eligible for licensure at the master's and doctoral levels. School psychologists are eligible for licensure at the [DM1] doctoral level. Curriculum and instruction specialists may earn the add-on license at the master's level or complete an Ed.D. for doctoral-level licensure [DM2].

Applications for North Carolina licensure must be submitted through the N.C. Department of Public Instruction's online licensure system by the graduate seeking N.C. licensure. Forms are no longer submitted by the UNC School of Education Licensure Officer. The UNC School of Education Licensure reviews and either approves or denies all licensure applications routed to UNC through the N.C. Department of Public Instruction online licensure system. More information about applying for N.C. licensure is available on the School of Education Web site (http://soe.unc.edu/services/student_affairs/licensure).

The programs described in this catalog are approved by the North Carolina Department of Public Instruction, the State Board of Education, and the National Council for the Accreditation of Teacher Education (now the Council for the Accreditation of Educator Preparation).

Note: Additional information may be found on the School of Education's Web site (http://soe.unc.edu).

The School of Education offers two doctoral degrees, the doctor of philosophy and the doctor of education:

1. The doctor of philosophy (Ph.D.) in education with five research areas (applied developmental sciences and special education; cultural studies and literacies; teacher education and curriculum; learning sciences and psychological studies; policy, leadership, and school improvement) and in school psychology
2. The doctor of education (Ed.D.) with two research areas, one in educational leadership and one in curriculum and instruction

The master's programs include the following degrees:

1. The master of arts in teaching (M.A.T.) with a concentration in middle grades or secondary education for English, social studies, mathematics and science; elementary education; and K–12 Special Education (General Curriculum)
2. The master of arts in teaching (M.A.T.) with a concentration in middle grades or secondary education for English, social studies, mathematics and science; and elementary education
3. The master of education (M.Ed.) in school counseling and the master's for experienced teachers
4. The master of school administration (M.S.A.)
5. The master of arts in education (M.A.)

The Graduate School administers all but the master of school administration program and the master's for experienced teachers, which the School of Education administers.

Two off-campus, part-time programs are offered: the master of education (M.Ed.) for experienced teachers and the flexible master of school administration (M.S.A. Flex). The content specialty areas for the M.Ed. program are early childhood intervention and family support (birth through kindergarten), literacy, social studies, mathematics, science, special education, and English as a second language. Content specialty areas generally offer admission every other year although some areas are offered more or less often.

The part-time, off-campus M.S.A. Flex program is designed for working professionals and stretches the normal two-year program offered on campus over an extended period of two and a half academic years, beginning each January with a new cohort. While the program emphasizes preparation for the school principalship, individuals with other educational career aspirations (such as district-level leadership positions) will find it appropriate.

Education Degree Requirements

M.A. Degree Requirements

1. A bachelor's degree from an accredited four year university
2. Completion of a minimum of 30 hours of graduate coursework and two consecutive semesters in residence
3. Completion of all required and elective courses within five years of admission
4. A grade of Pass on a written comprehensive exam or approved equivalent
5. Filing the degree application no later than the date specified in the academic calendar
6. A grade of P or better is required in all EDUC courses. One grade of F in an EDUC course makes a student academically ineligible to continue in the program

M.Ed. Degree Requirements

1. A bachelor's degree from an accredited four-year college or university
2. Completion of the minimum required number of semester hours of graduate coursework (Check with individual programs to ascertain the minimum requirements.)
3. Completion of at least two consecutive semesters in residence
4. Completion of all required and elective courses within five years of admission
5. A grade of Pass on a written comprehensive examination or approved equivalent.
6. Filing the degree application no later than the date specified in the academic calendar
7. A grade of P or better is required in all EDUC courses. One grade of F in an EDUC course or 9 hours of L (Low Pass) makes a student academically ineligible to continue in the program.

M.A.T. Degree Requirements

1. A bachelor's degree from an accredited four-year college or university
2. The equivalent of an undergraduate major in the chosen subject area
3. Completion of a minimum of 40 semester hours of advanced coursework
4. Completion of at least two consecutive semesters in residence
5. Completion of all required and elective courses within five years of admission
6. Completion of a teacher leadership project and capstone teacher research project (in conjunction with required course)
7. Passing scores on the Teaching Performance Assessment (edTPA), which synthesizes coursework and experiences as related to state and national standards and is required for North Carolina teaching license recommendation
8. Passing the PRAXIS II pedagogy exams (for secondary candidates); passing the Foundation of Reading (for elementary and K–12 Special Education candidates)
9. Passing the PRAXIS II exams related to *optional* add-on licensure area of ESL or Special Education as specified by the N.C. Department of Public Instruction
10. Successful completion of the full-time student teaching internship
11. Filing the degree application no later than the date specified in the academic calendar
12. A grade of P or better is required in all EDUC courses. One grade of F in an EDUC course makes a student academically ineligible to continue in the program.
13. A bachelor's degree from an accredited four-year college or university
14. The equivalent of an undergraduate major in the chosen subject area
15. Completion of a minimum of 40 semester hours of advanced coursework
16. Completion of at least two consecutive semesters in residence
17. Completion of all required and elective courses within five years of admission
18. Passing scores on the Teaching Performance Assessment (edTPA), which synthesizes coursework and experiences as related to state and national standards and is required for North Carolina teaching license recommendation
19. Passing the PRAXIS II pedagogy exams (for secondary candidates); passing the Foundation of Reading (for elementary candidates)
20. Successful completion of the full-time student teaching internship
21. Filing the degree application no later than the date specified in the academic calendar
22. A grade of P or better is required in all EDUC courses. One grade of F in an EDUC course makes a student academically ineligible to continue in the program.

M.S.A. Degree Requirements

1. A bachelor's degree from an accredited four-year college or university
2. Completion of the minimum required number of semester hours of graduate coursework. (Check with individual programs to ascertain the minimum requirements.)
3. Completion of a full year (10 months) or 360 hours (part-time) administrative internship
4. Completion of a portfolio of artifacts that demonstrate mastery of N.C. Standards for School Executives
5. A grade of P or better is required in all EDUC courses. One grade of F in an EDUC course makes a student academically ineligible to continue in the program. Two or more grades of L make a student academically ineligible to continue in the program.

Ed.D. (Doctor of Education) Degree Requirements

1. A bachelor's degree from an accredited four-year college or university and a master's degree in the field of educational leadership, administration, or an approved field. Students without such a

master's degree can still be admitted into the program as judged by faculty review. For the Ed.D. in curriculum and instruction, a master's degree is required, but it is not discipline specific. While it need not be discipline or subject specific, it typically focuses on educational practice or academic study of educational issues and topics.
2. Ed.S. students have five years to complete all coursework, while Ed.D. students have eight years to complete both the coursework and the dissertation.
3. A grade of P or better is required in all EDUC courses. One grade of F in an EDUC course makes a student academically ineligible to continue in the program.
4. Completion of 10 to 12 semester hours of research courses or research experiences as specified in the individualized program of study
5. Completion of a research apprenticeship in the student's area of specialization is required for the curriculum and instruction program.
6. Completion of a supervised field experience in the student's area of specialization is required for the educational leadership program, with additional requirements for the curriculum and instruction supervision licensure.
7. A grade of Pass on a written comprehensive examination
8. A grade of Pass on an oral examination
9. Successful completion of a final oral examination, which is the defense of the dissertation
10. Satisfactory completion of a research- or practice-based dissertation
11. Filing a degree application no later than the date specified in the academic calendar

Ph.D. (Doctor of Philosophy) Degree Requirements

In addition to the requirements of The Graduate School for the Ph.D., the School of Education also requires

1. Full-time enrollment until all formal coursework is completed
2. Completion of all required coursework on an approved individual program of study consisting of required and elective courses
3. A grade of P or better is required in all EDUC courses. One grade of F in an EDUC course makes a student academically ineligible to continue in the program.

Programs of Study

Master of Arts (M.A.) in Education

The M.A. in educational innovation, technology, and entrepreneurship (MEITE) is designed to provide students with the core set of skills necessary to created educational innovations that are grounded in the learning sciences. The MEITE program develops leaders in educational innovation who:

- create learning environments of the future
- design, scale, and/or commercialize breakthrough educational technologies, pedagogy and curriculum based on the science of learning
- inspire transformational change in technology-intensive learning organizations.

These innovations may take place within traditional schools but are just as likely to occur outside schools, whether as Internet-based applications or mobile apps, or in nontraditional learning environments such as science centers, after-school programs, or community-based organizations.

The 36 credit program at UNC—Chapel Hill can be completed as early as one year (fall, spring, summer semesters) by participating in our full-time intensive cohort program. We also offer the option to enroll part-time, two courses per semester on average, giving you flexibility to maintain employment while pursuing the degree. We admit students twice per year (fall and spring), however, thesis projects are completed in the summer.

Master of Education (M.Ed.) for Experienced Teachers

The M.Ed. for experienced teachers is a part-time, field-based program for teachers currently employed in local schools and community-based programs, public and private. The program is designed to assist licensed teachers having at least two years of experience in reflecting upon their experiences and developing further skill and art as professional educators. It is a 31-to-36-hour program (depending on the content area) that begins in the summer and extends through the subsequent two years. Courses during the traditional calendar school year are offered generally from 4:30 p.m. to 7:20 p.m in a hybrid format. For specifics about content areas, please visit the School of Education's Web site (http://soe.unc.edu) or call (919) 966-1346.

Master of Education (M.Ed.) in School Counseling

The M.Ed. program in school counseling is predicated on the Strengths-Based School Counseling (SBSC) model, which asserts that the school counselor's primary role is to promote and advocate for positive youth development for all students and for the environments that enhance and sustain that development.

The SBSC approach characterizes positive youth development as nurturing and enhancing empirically identified student strengths or competencies rather than focusing on student weaknesses and problem areas.

SBSC provides a framework to guide the practice of school counseling in the 21st century that is both compatible with and operationalizes many of the features of the ASCA National Model for School Counseling Programs.

Strengths-based school counselors employ a variety of direct (e.g., counseling, classroom guidance) and systemic (e.g., consultation, advocacy) interventions to promote culturally relevant student development in the academic, personal/social, and career domains. The strengths-based perspective identifies the counselor as a school leader who works with students, teachers, administrators, parents, and other members of the community and promotes strengths-enhancing environments for all students.

Requirements

The M.Ed. program in school counseling consists of four semesters of full-time study, 60 semester hours of coursework over a 14-month period. Students normally begin classes during the last week in May. Students finish the program by August of the year following their entrance into the program.

Because the 60 semester hours of coursework are completed in a 14-month period rather than in the more traditional two-year period for programs of this type, this is a concentrated and intense program. As a result, only full-time students are admitted, and students may not enter the program at times other than the one specified above.

1. Thirty (30) hours of content courses
2. Twenty-four (24) hours of skill/clinical courses
3. Six (6) hours of graduate-level electives, approved by the advisor

The fall practicum runs from August through October. The fall internship runs from October through December. Students must spend a minimum of 100 (40 direct service) clock hours in the practicum and 600 (240 direct service) hours in the internship in their field experiences during the August to June K–12 public school year. The schedule for accumulating the required 700 hours is typically completed in three full-time days per week at the school site and/or arranged with both the field supervisor and EDUC 705 instructors.

Master of Arts in Teaching (M.A.T.)

The Master of Arts in Teaching (M.A.T.) program is designed for individuals wishing to teach elementary school (grades K–6) or middle school (grades 6–8)/high school (grades 9-12) in the subject areas in math, science, English or social studies. This field-based, student-centered, cohort model program relies on partnerships between public schools and the University and provides the context of real classrooms as the motivation for students to connect theory and practice. Through the use of its signature pedagogy of experiential education, the M.A.T. is a professional preparation program that is designed to prepare candidates for initial teaching licensure in North Carolina by providing opportunities for students to accomplish three general objectives:

1. Expand their understanding of methodology in a content specialization
2. Gain an understanding of curriculum and instruction, and
3. Provide knowledge of the social and psychological foundations of education

The M.A.T. is a 12-month, full-time program that requires 40 hours of coursework. There are optional add-on programs (12 hours each) in special education and English as a second language, which if taken, extend the program length and cost by approximately two months. Seminars, methods, contexts, learner, and learning courses are ongoing throughout the M.A.T and are both interdisciplinary and subject area oriented.

The program of study and more detailed program and application information can be found on the School of Education's Web site. (http://soe.unc.edu/academics/mat/#program-details)

Some clinical placements could include multiple settings and levels of instruction.

Seminars, methods, contexts, learner, and learning courses are ongoing over the entire 12-month period and are both interdisciplinary and subject area oriented.

Master of School Administration (M.S.A.)

The M.S.A. on-campus and M.S.A. FLEX programs prepare individuals to lead schools and other educational organizations for the schools of North Carolina and the nation. These programs include three dimensions:

1. Awareness (i.e., acquiring concepts, information, definitions, and procedures)
2. Understanding (i.e., interpreting knowledge to school environments, integrating concepts with practice, and using knowledge and skills in context)
3. Knowledge (i.e., applying knowledge and skills to specific problems of practice)

While most of those who complete this program move into administrative positions at the school-site level, some assume roles within state, regional, or national organizations that focus on educational professional development, research, or policy making. The completion of this program leads to eligibility for licensure from the North Carolina State Department of Public Instruction and qualifies graduates for administrative certification in most states. For additional information, please visit the school's Web site (http://soe.unc.edu).

Doctor of Education (Ed.D.) in Curriculum and Instruction

The Ed.D. program in curriculum and instruction is designed specifically for people who seek to become curriculum leaders for the 21st century. While the target populations for this program are those who have master's degrees and who work in curriculum or instructional specialties offices and state departments of public instruction, higher education and non-profits. The program will also enroll experienced teachers and other school personnel who have or seek leadership roles within schools or other educational settings. The program also prepares curriculum developers and those professionals interested in assessment in higher education. Potential professional leadership roles for curriculum and instruction doctoral program graduates include district- or state-level directors of curriculum and instruction or a specialty area, P-12 specialty area supervisors, school-based leaders working with mentor teachers, leaders in higher education and leaders in non-profit settings. A variety of specialty areas may be selected within the Ed.D. program; those include instructional technology, curriculum design and development, cultural and linguistic diversity, special education, universal pre-kindergarten, international education, higher education and non-profit management. This program accommodates full and part time students.

Doctor of Education (Ed.D.) in Educational Leadership

The Educational Leadership doctoral program develops students primarily for leadership roles in K–12 public school districts throughout the nation. The program prepares students to excel in ever-changing national, state, and local educational environments. Courses are offered in the evenings during the fall and spring terms, in the summer and on weekends. Most students are enrolled part time and typically take two courses per semester.

Students may transfer up to nine credit hours, subject to program faculty approval. Credits must have been taken at the graduate level, for a grade, within the past five years.

Educational Specialist, Ed.S.

The School of Education is approved by the North Carolina Department of Public Instruction to recommend the educational specialist license in the areas of educational leadership. More information on the required programs of study and specific licensing requirements can be found on the School of Education's Web site.

Educational Leadership, Ed.D.

The program of study for the Ed.D. in educational leadership can be found on the School of Education's Web site.

If an Ed.D. student does not have a master's degree in educational leadership or school administration, he or she is required to take a minimum of nine additional credits in the Master of School Administration (M.S.A.) program. The student may, with the chair's

permission, transfer up to nine educational leadership credits from another accredited institution.

Doctor of Philosophy (Ph.D.) in Education

The schools in North Carolina and in the nation face myriad complex issues and challenges. These challenges range from meeting the educational and social-emotional needs of diverse student populations to designing, implementing, and evaluating educational programs within cultural contexts. The Ph.D. in education prepares leaders in educational research who understand these issues and who can improve educational practice using state-of-the-art knowledge and research skills. The design of the program fosters collaboration among faculty members and students from diverse disciplines. Such cooperation across levels and areas of interest provides the opportunity to develop relevant research agendas. Graduates of this program are prepared for leadership positions in research and teaching at major universities and institutes in the state and nation.

The Ph.D. in education is a single program with five research emphases: applied developmental sciences and special education; cultural studies and literacies; learning sciences and psychological studies; policy, leadership, and school improvement; and teacher education and curriculum. These five fields blend areas of inquiry that were formerly discrete.

The following courses are required for all School of Education Ph.D. students:

Code	Title	Hours
EDUC 710	Introductory Statistical Methods	4
EDUC 825	Development and Learning	3
EDUC 830	Field Techniques in Educational Research	3
One advanced research methods course (varies)		
EDUC 867	Issues in Educational Policy and Research	3
EDUC 876	Histories of School and Schooling	3

The mission of the applied developmental science and special education (ADSSE) program area is to train doctoral students in the interdisciplinary, theoretical foundations of applied developmental science and special education. These foundations will provide young scholars with the tools to advance knowledge about human development from birth through adolescence, with a particular focus on studying children/students at risk for learning and behavioral challenges. This mission is accomplished by offering research perspectives in

1. the developmental trajectories of families and children/students from diverse sociocultural backgrounds in the multiple contexts in which they live, including school, home, neighborhoods, and communities, as well as a grounding in
2. evidence-based models of prevention that seek to provide equitable opportunities for learning and successful adjustment for all children by emphasizing education and instruction directed towards individual differences among learners.

The ADSSE program is dedicated to developing a new generation of interdisciplinary scholars who have acquired a rigorous research knowledge base with expertise in a quantitative, mixed method, and single case methodology. Students work closely with their advisor and committee members to develop the skills and experiences necessary to work as leaders in a variety of research settings, including institutions of higher education, governmental entities at the state or federal level, and private research firms. Students may choose one of three specializations within the ADSSE strand: 1) Applied Developmental Science; 2) Special Education; and 3) Sociocultural Diversity. Throughout the doctoral experience, students will engage in research activities, grant writing, and the dissemination of their research and prevention efforts, such as presenting their research at local, state, and national conferences, and teaching college-level classes.

The mission of the applied developmental science and special education (ADSSE) program area is to train doctoral students in the interdisciplinary, theoretical foundations of developmental science. These foundations will provide young scholars with the tools to advance knowledge about human development from birth through adolescence, with a particular focus on studying children/students at risk for learning and behavioral challenges. This mission is accomplished by offering research perspectives in

a. the developmental trajectories of families and children/students from diverse sociocultural backgrounds in the multiple contexts in which they live, including school, home, neighborhoods, and communities, as well as a grounding in
b. evidence-based models of prevention that seek to provide equitable opportunities for learning and successful adjustment for all children by emphasizing education and instruction directed towards individual differences among learners.

The ADSSE program is dedicated to developing a new generation of interdisciplinary scholars who have acquired a rigorous research knowledge base with expertise in a quantitative, mixed method, and single case methodology. Graduates will work closely with their advisor and committee members to develop the skills and experiences necessary to work as leaders in a variety of research settings, including institutions of higher education, governmental entities at the state or federal level, and private research firms. Throughout the doctoral experience, students will engage in research activities, grant writing, and the dissemination of their research and prevention efforts, such as presenting their research at local, state, and national conferences, and teaching college-level classes.

The Culture, Curriculum and Teacher Education strand is designed for future scholars and researchers who will study the linguistic, social, and cultural contexts of education and how culture, language, and education are produced locally, nationally, and globally. This strand prepares future scholars, researchers, and faculty members who work in the areas of multiple and critical literacies; social and cultural foundations of education; the intersectionality of race, gender, language, sexual orientation, and class; qualitative research methods broadly conceived; and how all to these contribute to creating social and educational inequities. Our focus is both critical and constructive. Our efforts first describe, interpret, and critique current practice and belief and then move to strategizing about how to create a more equitable society and world. We prepare scholars to be first rate educators, theorists, and qualitative research methodologists—and advocates for change.

The Learning Sciences and Psychological Studies (LSPS) Ph.D. program draws upon the relatively new field of learning sciences that has emerged to address the increasingly inter- and multidisciplinary nature of work within and beyond the academy. Program faculty represent a diverse set of academic backgrounds and fields (e.g., critical theory, educational psychology, psychometrics, school psychology, sociocultural studies, mathematics and science education, technology studies, statistics). LSPS focuses on learning, a cognitive, social, and cultural activity that is distributed among the participating actors as individuals and groups within a specific context. The strand examines formal and informal learning within and across multiple contexts (e.g., teaching and learning

in classrooms, centers, communities, homes, museums, schools, virtual environments) from multiple perspectives (e.g., critical, disciplinary, design-based, postpositivist, poststructuralist, and structuralist). The rigorous study of formal and informal learning utilizes multiple paradigms and employs quantitative, qualitative, and mixed methods approaches most appropriate for the questions investigated. The examination of formal and informal learning seeks to understand how people learn and how this learning is influenced by knowledge, networks, social and societal structures, tools (e.g., technology), and an array of sociocultural factors. The goals of this examination of learning is to produce theory, generate research, inform policy, and develop practice that leads to the construction and design of environments that facilitate optimal opportunity and access for and development of all participants, within the contexts in which formal and informal learning occurs. LSPS is committed to the preparation of doctoral students who develop an interdisciplinary and multidisciplinary expertise within a concentration (e.g., mathematics and science education, education and technology, cognition and learning, quantitative methods and evaluation). LSPS intends to develop doctoral candidates who thoroughly understand theory, research, the paradigmatic underpinnings of each and the plausible implications of each for policy and practice; who are able to generate scholarship and design and conduct rigorous theory-driven research appropriate for the issues identified; and who are able to foster mutually informative, translational relationships among the diverse stakeholders in academic, policy, and practice communities.

Students interested in LSPS can elect to concentrate in a number of areas, including mathematics education, science education, educational technology, cognition, and quantitative methods and evaluation. The design of the LSPS program requires committed engagement on the part of students and faculty members in order to benefit from the dynamic interaction that occurs when multiple, interdisciplinary perspectives are used to inform learning and achievement.

The aim of the Ph.D. program in policy, leadership, and school improvement (PLS) is to prepare leaders who will influence the direction of educational organizations at home and around the world. The program produces scholars, administrators, and analysts for leadership roles in K–12 systems, universities, research organizations, and policy-making bodies. It does so by developing students' understanding of the societal, political, and economic conditions affecting schools; the capacity to analyze educational problems and their proposed solutions; and the ability to design innovations and implementation processes that work.

The Ph.D. program in PLS is among the few programs at elite public universities in the nation to offer opportunities to study with a faculty whose work in K–12 administration, education policy, and school improvement is internationally known. As leaders in these areas, our faculty works collaboratively with students to develop research questions and hypotheses, study them in state and national settings, and link findings to practice. Faculty and students in PLS are engaged in the examination and critique of today's important and contested issues in education, including

- Teacher quality
- Turn-around schools
- High school effectiveness
- Resource allocation
- Principal instructional leadership
- Issues of class, gender, immigration, and race in education

In addition to disciplinary core and research courses, students pursue programs of study that include courses in policy making, education program evaluation and policy analysis, school law, leadership, educational innovation, implementation, and taking reforms to scale. In combination with courses in quantitative, qualitative, and mixed research methods, students develop their research skills through a professional seminar and assistantships with faculty members. Committed to professional service, our faculty members are also members of editorial boards and advisory forums at the national, state, and local levels. They also work directly with school systems, consulting on issues of staffing, instructional delivery, and governance. PLS faculty members are currently working with the federal Race to the Top initiative in North Carolina and a national education research center funded by the U.S. Department of Education.

Engaging the tensions of individual freedom and collective responsibility and addressing both local and national issues and their histories, as well as international perspectives, scholarship in teacher education and curriculum includes school-based inquiry as well as theoretical studies of pedagogy, knowledge, and the construction of democratic communities. This inquiry flourishes when it employs a variety of research methods, qualitative and quantitative research as well as historical, literary, and philosophical studies. Students will select research courses that will complement their own intellectual skills and prepare them to address the problems they wish to study.

Students in the Ph.D. program are required to maintain full-time enrollment through the completion of coursework, with the expectation that they will graduate in three to four years. Programs of study are available on the School of Education's Web site (http://soe.unc.edu).

Doctor of Philosophy (Ph.D.) in School Psychology

The goal of the UNC-Chapel Hill doctoral School Psychology program is to prepare school psychologists as scientist-practitioners to assume leadership positions in academic, research, and applied settings (e.g., schools, clinics and hospitals). To this end students study both broad and general knowledge in psychology, obtain knowledge, skills, and competencies specific to a professional psychologist, and participate in a wide variety of supervised clinical and research activities designed to prepare them for these positions. The UNC doctoral program is accredited by the American Psychological Association (http://www.apa.org) and through this accreditation has approval by the National Association of School Psychologists (http://www.nasponline.org).

Applicants to the program should have an undergraduate degree in psychology or human development, or a master's or specialist degree in an area of psychology, education, or related discipline.

The program emphasizes a prevention/intervention approach to enhancing the academic and social/emotional competencies of children and youth. It also emphasizes an ecological, systems perspective, recognizing that children and youth reside within increasingly complex situations, including their families, neighborhoods, communities, and school. Furthermore, the interdisciplinary nature of the school system is emphasized and students develop the skills and understanding necessary to communicate with other school professionals as well as parents and community agencies as part of a multidisciplinary team. Finally, intervention research and implementation science are the used as the framework from which psychologists can help manage the research to practice gap and learn to successfully promote evidence-based practices. Students are expected to develop expertise in assessment, intervention, prevention, consultation, evaluation, and research, gaining increasingly advanced knowledge and skills as they progress through

the program. Within the educational setting, school psychologists serve numerous clients including pupils, teachers, supporting educational personnel, and parents. In community and clinical settings students gain experience providing services to high needs populations of children, youth and families. Students take internships in school, clinic and hospital settings in North Carolina and around the nation and most participate in the APPIC process. Completion of the program leads to eligibility for licensure from the State Department of Public Instruction (http://www.ncpublicschools.org/licensure) as a Level III School Psychologist in North 22 | Rev 071218 Carolina and qualifies one for such certification in most other states. Also, graduates are eligible for licensing by the North Carolina State Psychology Board.

Professors

Fouad Abd-El-Khalick, Patrick Akos, Kathleen Brown, Gregory Cizek, Lora Cohen-Vogel, Jeff Greene, Jill Hamm, Sherick Hughes, Catherine Marshall (retiring 6/30/19), Eileen Parsons, Xue Lan Rong, Keith Sawyer, Rune Simeonsson, Lynda Stone.

Associate Professors

Harriet Able, Janice Anderson, Cheryl Mason Bolick, Thurston (Thad) Domina, Nianbo Dong, Jocelyn Glazier, Dana Griffin, Peter Halpin, Eric Houck, Steve Knotek, Roger Mills-Koonce, Rebecca New, Rita O'Sullivan, Kelly Ryoo, Matthew Springer, James Trier.

Assistant Professors

Matthew Bernacki, Brian Gibbs, Ayesha Hashim, Marisa Marraccini, Robert Martinez Jr.

Professors of the Practice

Pat Ashley, Ann McColl, Neil Pedersen.

Research Professors

Donald Bailey, David Cooper, Karen Erickson, Samuel Odom Jr., Peter Ornstein, Malbert Smith, A. Jackson Stenner, Ann Turnbull, Rutherford (Rud) Turnbull, Lynne Vernon-Feagans, Pamela Winton.

Research Associate Professors

Desiree Murray, Ellen Peisner-Feinberg.

Research Assistant Professors

Kara Hume, Jacqui McLaughlin.

Clinical Professors

Deborah Eaker-Rich, Suzanne Gulledge, Stephen Hooper.

Clinical Associate Professors

Leslie Babinski, Jennifer Coble, Jennifer Diliberto-Fender, Sandra Evarrs, Helyne Frederick, Daniel Huff, Laura Klinger, Catherine Scott.

Clinical Assistant Professors

Clinton Bolton, Todd Boyette, Johnavae Campbell, Melissa DeRosier, Samantha DeVilbiss, Peter Duquette, Lori Edmonds, Abigail Hoffman, Martinette Horner, Derrick Jordan, Alison LaGarry, Alvera Lesane, Diana Lys, Deborah Manzo, Julie Marks, Gary Miller, Denise Morton, Kristin Papoi, Justin Parker, Stacey Parker, Robert Pleasants, Christopher Scott, Holly Sopko, Eric Sparks, Miranda Thomas, Julie Vandiver, Meghan Walter, Caryn Ward, Anne Wheeler, Susan Wynn.

Clinical Instructors

Robin Blanton, Katie Cartmell, Christy Clemons, Winston Crisp, Jess Evans, Jeffrey Fuchs, Jacquelyn Gist, Carmen Gonzalez, Suzanne Harbour, Thomas Hardiman, James LoFrese, Mary Faith Mount-Cors, Ion Outterbridge, Candice Powell, Jeff Sackaroff, Bettina Shuford.

Adjunct Assistant Professors

Kengie Bass, Francemise Kingsberry, Alex Tabori, Megan Vinh.

Adjunct Instructors

Laura Ketola, Kate Kryder, Bobby Kunstman, Sharon Levine, Krista Prince.

Professors Emeriti

Richard Brice, Linda Brooks, Duane Brown, Frank Brown, William I. Burke, Richard Coop, James Cunningham, Barbara Day, Jill Fitzgerald, R. Sterling Hennis Jr., Paul B. Hounshell, Richard C. Hunter, Bobbie Boyd Lubker, William Malloy, William S. Palmer, Richard C. Phillips, Walter Pryzwansky, Dixie Lee Spiegel, Donald J. Stedman, Gary Stuck, Alan Tom, Neal H. Tracy, Gerald Unks, Ronald Wiegerink, Kinnard P. White, Ralph E. Wileman Jr.

EDUC

Advanced Undergraduate and Graduate-level Courses

EDUC 400. Autism in Our Communities: An Interdisciplinary Perspective. 3 Credits.
Students have 30 hours of service-learning with individuals with autism at community partner sites. Class discussions introduce students to diverse topics related to autism spectrum disorder. This is an APPLES course.
Gen Ed: EE- Service Learning.
Grading status: Letter grade
Same as: SPHS 400.

EDUC 401. Introduction to Early Childhood Development: Birth to Eight. 3 Credits.
This course examines the field of child development as it contributes to the teaching and learning of children in early childhood and elementary educational settings, ages birth to eight.
Grading status: Letter grade.

EDUC 402. Models of Early Childhood Service Delivery. 3 Credits.
This seminar serves as an introduction to the field of child development and early childhood education and special education. Students learn about the primary professional disciplines and agencies serving young children and their families. Current policy, recommended practices, and research innovations are reviewed.
Grading status: Letter grade.

EDUC 403. Families and Communities in Diverse Contexts for Children. 3 Credits.
This course examines issues of diversity among and across families, in order to better prepare students for human service fields in a variety of settings such as clinics, schools, advocacy, and other organizations.
Grading status: Letter grade.

EDUC 404. Infant/Toddler Assessment and Intervention. 3 Credits.
Restricted to majors. Permission of the instructor for nonmajors. Provides students with knowledge of program models and curricula/intervention strategies for working with infants and toddlers with and without disabilities. Information is provided regarding identification and assessment strategies for infants, toddlers, and two-year-olds. Program models for working with families are emphasized.
Requisites: Prerequisite, EDUC 401.
Grading status: Letter grade.

EDUC 405. Parenting and Family Life Education. 3 Credits.
This course is a lifespan approach to parent-child relationships and implications for enhancing the well-being of families. A major focus will be on research and theory regarding parenting during the different stages of the lifespan.
Grading status: Letter grade.

EDUC 408. Research Methods in Human Development. 3 Credits.
An introductory examination of human development and family research methods designed to provide an understanding of scientific inquiry, methodology, measurement, test construction, scaling, and statistical terms and techniques.
Grading status: Letter grade.

EDUC 410. Families and Communities in Diverse Contexts for Youth. 3 Credits.
This course is an exploration of the research and theory about programs that promote youth development and prevent youth problems in the diverse contexts where youth function (i.e., home, school, outside of school activities, sports, peer networks, etc.). Career options (e.g., social work, law enforcement, teaching, and community outreach work) will also be explored through sociocultural lenses.
Grading status: Letter grade.

EDUC 411. Making Liberal Arts "Work. 3 Credits.
Learn how to translate the outcomes of a liberal arts education to the world of work. The course will engage students in connecting one's intellectual and practical learning, as well as individual and social responsibilities to contemporary career skills and life-career design. Critical reflection on concurrent and diverse internship experience is utilized to contextualize skills and further explicate career identity working in a knowledge and digital ecology. Permission of the instructor for students with fewer than 8 hours of weekly work.
Gen Ed: SS, EE- Field Work.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

EDUC 413. Language and Literacy Learning. 3 Credits.
Permission of the instructor for nonmajors. This course covers the theoretical and developmental aspects of language and literacy processes and practices. The course will cover reading, writing, speaking, listening and viewing practices, birth to age 12.
Grading status: Letter grade.

EDUC 416. Curriculum Integration: Science, Math, and Technology. 3 Credits.
Permission of the instructor for nonmajors. The focus of this course is children's development in mathematical and scientific ways of knowing and the use of technology to support this development.
Grading status: Letter grade.

EDUC 421. Community Organizations and Children I. 1 Credit.
Provides an understanding of the community contexts of schools and an experience working in community group. This is the first semester of two-semester course.
Grading status: Letter grade.

EDUC 422. Community Organizations and Children II. 1 Credit.
Provides prospective teachers with an understanding of the community contexts of the schools. Second semester of a two-semester course.
Requisites: Prerequisite, EDUC 421.
Grading status: Letter grade.

EDUC 441. Education in American Society. 3 Credits.
A reflective examination of beliefs and attitudes associated with 1) the historical, philosophical, sociological, political, and economic forces affecting education and schooling in the United States; 2) the structure and function of the school system; and 3) current issues and trends in American schooling and education.
Grading status: Letter grade.

EDUC 464. Teaching Profession. 3 Credits.
Introduction to teaching. Course covers foundations and philosophies of education, current issues, and trends in public schooling.
Grading status: Letter grade.

EDUC 465. Introduction to Teaching. 2 Credits.
Offered concurrently with EDUC 466. Restricted to students admitted to the middle grades teacher education program. Initiates students into the teaching profession. The course stresses what it is like to be a teacher, with concurrent emphasis on the life of the student and the study of schools.
Grading status: Letter grade.

EDUC 466. Planning for Teaching in the Middle Grades. 3 Credits.
Offered concurrently with EDUC 465. Restricted to students admitted to the middle grades teacher education program. Helps students learn how to plan and develop skills to meet the unique and diverse needs of young adolescents as they prepare to teach.
Grading status: Letter grade.

EDUC 469. Developing Skills for Teaching. 3 Credits.
Helps students develop a variety of basic teaching skills used by classroom teachers. This course will be conducted primarily as a laboratory course.
Requisites: Prerequisites, EDUC 465 and 466.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

EDUC 470. Therapeutic Value of Play. 3 Credits.
This course examines various theoretical models of play and development in clinical, health, and school settings. Students are taught basic skills to create therapeutic play environments and to respond to the intellectual, emotional, and social needs of children in schools, hospitals, and other therapeutic settings. HDFS majors or permission from the program coordinator.
Grading status: Letter grade.

EDUC 475. Child and Family Health. 3 Credits.
This course serves to integrate our core field of human development and family studies with other public health issues and professions to help improve understanding of factors impacting the health and well-being of children, youth, and families. The course blends human development theories, family systems theories, and health promotion theories to better understand the health experiences of individuals across the lifespan.
Grading status: Letter grade.

EDUC 480. Resource Management for Individuals and Families. 3 Credits.
This course examines individual and family resource management. Students will develop skills related to importance of time management, financial planning and budgeting, consumer decision-making, and allocation of resources to the well-being of children, youth, and families. The course also examines issues related to grant writing, consumer economics, conflict resolution, poverty alleviation, work-family balance, and stress management.
Grading status: Letter grade.

EDUC 493. Practicum. 1-6 Credits.
Permission of the instructor for nonmajors. Students gain familiarity with the operations and complexity of teaching. Students observe instruction, assist in teaching, learn about the curriculum and specific resources, interact with school personnel, work with students, and apply skills learned in previous courses. Prepares students for internship or student teaching.
Gen Ed: EE- Field Work.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 496. Independent Study. 1-3 Credits.
Permission of the instructor. Provides readings and research under the direction of a faculty member. May be repeated for a maximum of six credit hours.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

EDUC 503. Leadership Seminar. 1-3 Credits.
Course asks students to consider what it means to participate in schools as educational leaders. Students consider how to collaborate effectively with school colleagues, advocate for children and families, participate in the politics of schools and education, and examine what it means to be change agents in classrooms and schools.
Grading status: Letter grade.

EDUC 504. Learning in the Modern World. 3 Credits.
Students learn about current educational emphases and controversies as well as what the research and scholarship in the fields of education and cognition can contribute to our understanding of these phenomena.
Gen Ed: SS.
Grading status: Letter grade.

EDUC 505. Leadership in Educational/Nonprofit Settings. 3 Credits.
Introduces students to a research-based, highly practical understanding of leadership frames/styles prominent in educational/nonprofit organizations. Emphasizes continued student engagement with various leadership models and principles.
Gen Ed: SS.
Grading status: Letter grade.

EDUC 506. Politics, Policymaking, and America's Schools. 3 Credits.
Through extensive case study and conversations with policy actors, students will learn the stages model of policy making and understand conflicting values that play out in policy decisions.
Gen Ed: SS.
Grading status: Letter grade.

EDUC 507. Arts, Education, and Social Change. 3 Credits.
An exploration of the function and history of art in educational and social change movements. In this course students use a critical approach to examine various forms of art and expression as they relate to education.
Gen Ed: VP.
Grading status: Letter grade.

EDUC 508. Equity, Leadership, and You. 3 Credits.
This course was developed to confront and address questions of global cultural competence and self-critique. Culturally competent leaders work to understand their own biases and patterns of discrimination.
Gen Ed: SS, GL.
Grading status: Letter grade.

EDUC 509. Helping Youth Thrive in K-12 Schools. 3 Credits.
Learn strengths-oriented approaches in education practice, research, and policy. The course takes up contemporary literature on positive psychology, developmental assets, resiliency, cultural competence, school readiness, school engagement/ connectedness, and positive youth development.
Gen Ed: SS.
Grading status: Letter grade.

EDUC 510. Mexican American and Chicana/o Experience in Education. 3 Credits.
This course examines the political, cultural, and historical dimensions of the Mexican American and Chicana/o experience in education. A critical exploration of K-12 schools, higher education, and various social initiatives intended to address inequities in education for Mexican Americans and Chicanas/os will also be a focus of this class.
Gen Ed: HS, US.
Grading status: Letter grade.

EDUC 511. Politics of Reading. 3 Credits.
Course explores the politics and policies involved in literacy curriculum and pedagogy. Critical policy analysis is used as a tool to explore and understand the political issues involved in teaching young children to read and write.
Grading status: Letter grade.

EDUC 512. Critical Examination of Racism and Education: African American Case Example. 3 Credits.
This course examines previous and present eras in American education from a critical race perspective. Critiques will feature dominant or majoritarian narratives (widely adopted accounts often taught as part of an institution's curriculum) and counter narratives in regards to racism with the education of Blacks in America serving as a case example.
Grading status: Letter grade.

EDUC 513. Methods for Teaching in the Elementary School. 3-9 Credits.
Permission of the instructor for nonmajors. This methods block is a field based, integrated collection of science, literacy, and math courses designed to prepare pre-service teachers for planning and implementing instruction in elementary schools.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 515. The Arts as Integrative Teaching. 2 Credits.
Restricted to students admitted to the elementary education program or the child development and family studies program. Explores integration of the arts in the curriculum.
Grading status: Letter grade.

EDUC 516. Introduction to the Education of Exceptional Learners. 3 Credits.
Offers an overview of the special education field and its relevance to the classroom teacher. The course is based on an interdisciplinary perspective toward serving exceptional learners and collaboratively coordinating services. Course content emphasizes inclusive programming and the teacher's role in facilitating students' unique learning needs.
Grading status: Letter grade.

EDUC 517. Educational Partnership Through Program Evaluation. 3 Credits.
A practical introduction to theory and methodology in program evaluation, emphasizing partnership with educational organizations.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

EDUC 518. Exploring Public Pedagogies through Popular Culture. 3 Credits.
The generally accepted broad understanding of the term "public pedagogy" is that it refers to "the learning and education happening outside of formal schooling systems." Public pedagogy as a growing field explores how "spaces of learning such as popular culture, the Internet, public spaces such as museums and parks, and other civic and commercial spaces, including both old and new social movements," are potential "sites of pedagogy containing possibilities for both reproduction and resistance.
Gen Ed: LA.
Grading status: Letter grade.

EDUC 519. Senior Seminar. 3 Credits.
Course is restricted to majors. Permission of the instructor for nonmajors. The senior seminar is inquiry based and directly connects student teachers with classroom practices. Throughout the semester student teachers develop and implement inquiry projects.
Requisites: Prerequisite, EDUC 593.
Grading status: Letter grade.

EDUC 520. Early Language and Literacy Learning-Birth to Third Grade. 3 Credits.
Course is restricted to majors. Permission of the instructor for nonmajors. Course focuses on the language, reading, and writing development of children birth through third grade. Promotes early literacy learning for all children with and without disabilities, including those at risk.
Grading status: Letter grade.

EDUC 521. Schools, Cultures, and Communities I: Youth. 3 Credits.
Focus on youth in schools. This course considers the history and present lives of youth, primarily as teenagers/adolescents. It seeks recognition and understanding of the uniqueness of their lives.
Grading status: Letter grade.

EDUC 522. Schools, Cultures, and Communities II: Schools. 3 Credits.
Course focuses on schools and educational issues as they relate to practices and policies. Fulfills central ideas of the minor in education in consideration of the history and present conditions of schooling in a democratic society.
Grading status: Letter grade.

EDUC 523. Teaching Early Mathematics-Birth to Third Grade. 3 Credits.
Course is restricted to majors. Permission of the instructor for nonmajors. Students study the teaching and learning of mathematics for young children, birth to third grade. Emphasis is placed on content for math, as well as materials, techniques, and teaching aids.
Grading status: Letter grade.

EDUC 524. Learning on the Edge: Theories of Experiential Education. 3 Credits.
This course examines experiential education in a variety of settings. Students will explore the role experiential education currently plays and suggest new roles in a chosen field of study.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

EDUC 525. Human Abilities and Online Learning. 3 Credits.
Learn about the scientific basis of thinking and learning and what this implies for guiding children and adults, for personal development and for building environments that help people learn and grow successfully in a rapidly changing technological world.
Gen Ed: SS.
Grading status: Letter grade.

EDUC 526. Ethics and Education: From Global Problems to Classroom Dilemmas. 3 Credits.
Among the topics examined are ethical implications of democratic schooling for a democratic society, educators as moral agents, and education as an institution with incumbent responsibilities. Students explore the explicit and implied ethics of education and schooling as they relate to policy makers, educators, and citizens concerned about social justice.
Gen Ed: PH, CI.
Grading status: Letter grade.

EDUC 527. Screen Education: Representations of Education in Popular Culture. 3 Credits.
Explore and analyze how education has been represented in popular culture. "Education" refers to teachers, students, principals, other educators, and the everyday processes of schooling, and "popular culture" refers to school films (fictional films), school documentaries, television shows, music videos and song lyrics, animation, and other media forms.
Grading status: Letter grade.

EDUC 528. Exceptionality Across the Life Span. 3 Credits.
This course provides methods for supporting exceptional individuals across the age span. Resources for supporting families, including parenting skills, from birth through adulthood will be described.
Grading status: Letter grade.

EDUC 529. Education in American Society. 3 Credits.
Explore history of American schools to inform students' understandings of contemporary schools. Examine policies, issues, and controversies through a chronological examination of schools and society.
Gen Ed: HS, CI.
Grading status: Letter grade.

EDUC 530. Free-Choice Learning in Informal Environments. 3 Credits.
On average, Americans spend less than five percent of their lives in traditional classrooms and an ever-growing body of evidence supports the importance and quality of the knowledge gained outside of school. Parks, museums, theaters, zoos, and aquariums are just a few of the vast resources available to the American public. These informal learning environments are designed to educate, inspire, and entertain visitors in approachable and engaging ways.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

EDUC 531. Effective Teaching: First Steps. 2 Credits.
Characteristics of effective teachers, classroom management, instructional methods, instructional planning and presentation, monitoring and assessing student behavior and learning, differentiating instruction, yearly plans and pacing guides.
Grading status: Letter grade.

EDUC 532. Human Development and Learning. 3 Credits.
This course examines the field of human development as it contributes to the teaching and learning of all children and youth. The emphasis is on understanding the nature of development in family and educational contexts and the implications of research and theory on human development for teacher practice and human services and the creation of supportive learning environments for all children and youth.
Gen Ed: SS.
Grading status: Letter grade.

EDUC 533. Social Justice in Education. 3 Credits.
Course examines how education can help create more fair and just societies, ultimately contributing to high performing educational systems internationally. Students explore multiple perspectives on social justice; examine efforts at local, state, national, and global levels; and learn to articulate efforts in classrooms and schools with wider community initiatives.
Gen Ed: SS, US.
Grading status: Letter grade.

EDUC 534. Effective Teaching: Assessment. 2 Credits.
Methods of assessment, multiple measures, monitoring student performance to inform and improve instruction, understanding students with special needs with individual education plans, test scores, and other information in student files.
Grading status: Letter grade.

EDUC 535. Teachers and Schools. 3 Credits.
Leadership in classroom and school with families, standards of practice, advocating equity, supporting teaching profession, school organization, school finance, legal issue/education strategies for environments that promote learning, issues and trends.
Grading status: Letter grade.

EDUC 540. Mathematics Teaching. 2 Credits.
NCTM Standards, Standard Course of Study, developing student understanding of mathematics, problem-solving skills, and professional commitment.
Grading status: Letter grade.

EDUC 541. Mathematics Problems for Instruction. 2 Credits.
Mathematical tasks for learners in grades six through 12 and instructional methods necessary to maintain a task at a high cognitive level.
Grading status: Letter grade.

EDUC 542. Planning for Mathematics Instruction. 2 Credits.
Examining patterns of practice and assessment, modifying and improving planned units, pacing instruction, reconsidering individual differences and differentiation.
Grading status: Letter grade.

EDUC 550. Science Teaching. 2 Credits.
Nature of science, national science standards, teaching science as inquiry, safety in the science classroom, materials management.
Grading status: Letter grade.

EDUC 551. Designing Science Tasks. 2 Credits.
Developing and redesigning science instruction to engage students actively, with emphasis on classroom management for energetic curricula, modifying tasks and projects, assessment strategies, and utilization of resources.
Requisites: Prerequisite, EDUC 550.
Grading status: Letter grade.

EDUC 552. Improving Science Instruction. 2 Credits.
A practitioner's look at instruction in middle and high school science classrooms using many current pedagogical approaches of instruction: constructivism, models of inquiry, reflective practice, and conceptual change theory.
Requisites: Prerequisite, EDUC 551.
Grading status: Letter grade.

EDUC 555. Constructive Coaching I: Starting Out Right. 1 Credit.
Designed to support lateral entry candidates, solving the most urgent problems in the classroom. Includes frequent online communication, individualized attention to immediate problems and combines supervision, coaching, and mentoring.
Grading status: Letter grade.

EDUC 556. Constructive Coaching II: Effective Management of Student Behavior. 1 Credit.
Course designed to help lateral entry candidates by improving their classroom management skills, specifically those related to student behavior.
Requisites: Prerequisite, EDUC 555.
Grading status: Letter grade.

EDUC 557. Constructive Coaching III: Helping Students Learn. 3 Credits.
Course designed to support the lateral entry candidates through individualized feedback about concerns, focusing on strategies for increasing student learning using content area literacy strategies.
Requisites: Prerequisite, EDUC 556.
Grading status: Letter grade.

EDUC 560. Second Language Teaching. 2 Credits.
Methods of teaching a second language, how people learn foreign languages, planning instruction, getting students to communicate, using and adapting foreign language textbooks, and developing lessons.
Grading status: Letter grade.

EDUC 561. Designing Second Language Tasks. 2 Credits.
Students examine instruction as effective mechanism for classroom management, choosing and redesigning tasks and projects to engage students in active learning. Assessment of student understanding investigated as necessary for development of effective instruction.
Grading status: Letter grade.

EDUC 562. Improving Second Language Instruction. 2 Credits.
Students will consider national standards frameworks as organizing principles for instructional strategies. They will develop skills by use of culturally authentic materials, performance-based assessment, and units and lessons promoting successful language learning.
Grading status: Letter grade.

EDUC 563. Teaching Language Arts in the Middle Grades. 3 Credits.
Restricted to students admitted to the middle grades education program. Focuses on the goals and methods of teaching language arts in the middle grades, including planning for student diversity and unit planning.
Grading status: Letter grade.

EDUC 564. Teaching Social Studies in the Middle Grades. 3 Credits.
Restricted to students admitted to the middle grades education program. Focuses on the goals and methods of teaching social studies in the middle grades.
Grading status: Letter grade.

EDUC 565. Teaching Science in the Middle Grades. 3 Credits.
Restricted to students admitted to the middle grades education program. Focuses on methods for teaching science in the middle grades and includes emphasis on the individual needs of students, reading and writing in the content area, and unit planning.
Grading status: Letter grade.

EDUC 566. Teaching Math in the Middle Grades. 3 Credits.
Restricted to students admitted to the middle grades education program. Focuses on methods for teaching mathematics in the middle grades and includes emphasis on the individual needs of students, reading and writing in the content area, and unit planning.
Grading status: Letter grade.

EDUC 567. Children's Literature in Elementary and Middle Schools. 3 Credits.
Explores literature in the contexts of interdisciplinary elementary and middle school curricula and the interests and needs of children and young adolescents. Topics include reader-response theory, censorship, Internet resources, school resources, and methods.
Gen Ed: LA, CI.
Grading status: Letter grade.

EDUC 568. Seminar on Teaching. 3 Credits.
Prerequisites, EDUC 465, 466, and 469;
Requisites: corequisite, EDUC 593.
Grading status: Letter grade.

EDUC 570. History of American Higher Education. 3 Credits.
Students in this class will be introduced to higher education in the United States. This course will focus on the development of colleges and universities and how their development helped shape and define current institutional practices and policies.
Gen Ed: HS.
Grading status: Letter grade.

EDUC 571. The Maker Movement and Education. 3 Credits.
Education research shows that people learn better when they move, they work with their hands, they manipulate objects, and they design and make things. We've known this for years, but it's been very hard to design activities for children where they can move and make, and at the same time learn the required course material. But today that's changed, thanks to exciting new technologies that bring learning and making together.
Gen Ed: SS, CI.
Grading status: Letter grade.

EDUC 572. Psychology of Creativity. 3 Credits.
How do people create? How do people learn to be creative? This class will introduce you to the latest scientific understandings of how creativity works. You'll actively engage in the creative process, in four different domains, such as creative writing and music production. We'll connect these experiences to the latest science of how creativity works, in psychology and in other disciplines.
Gen Ed: SS, CI.
Grading status: Letter grade.

EDUC 573. Reading the World: Paulo Freire, Local History, and Public Pedagogy. 3 Credits.
This course is a thought experiment examining current and historical controversies in the areas within which we live. Using the lens of Public Pedagogy defined as the pedagogy in which all humans are immersed in which is not without politics and message. The world as constructed as created by humans is charged with messages subtle and overt that shape our experience and point of view.
Gen Ed: SS, US.
Grading status: Letter grade.

EDUC 574. Representations of Education in Documentaries. 3 Credits.
Representations of teachers, students, and schooling appear in many popular media forms, including films, television shows, animation, popular songs, music videos, TV news and commercials, young adult fiction, and more. Alongside the subgenre of "school films" there exists another vibrant and robust cinematic subgenre composed of documentaries about "Education" (writ large). This course is an introduction to and exploration of these documentaries about education.
Grading status: Letter grade.

EDUC 575. Teaching to Transform Society I. 3 Credits.
This course will utilize theories, frameworks, and policy history in order to help students contextualize the experiences of marginalized communities in education. Academic credit hours are earned through a combination of weekly course meetings, completion of reading and writing assignments, and assessments. Participation in this course serves as a prerequisite to Teaching to Transform Society II, a service-learning course where students receive placement as interns at either LatinxEd or at a partner youth development organization.
Gen Ed: US.
Grading status: Letter grade.

EDUC 576. Teaching to Transform Society II. 3 Credits.
This course is primarily built upon weekly service learning, as students receive hands-on and behind-the-scenes experience in serving local schools, community-based organizations, and other youth-serving initiatives, specifically with LatinxEd's programs and partners. Service learning is coupled with weekly university course where students will collectively reflect on their experience in educational settings in and out of the classroom and receive mentorship from LatinxEd staff and partners.
Requisites: Prerequisite, EDUC 575.
Gen Ed: EE- Service Learning, US.
Grading status: Letter grade.

EDUC 583. Career and Professional Development. 3 Credits.
This course provides an integrative learning experience which prepares HDFS students to apply academic learning acquired in previous coursework to real-life situations likely to be encountered in the internship experience and throughout their careers in the field of human services. Course materials and learning experiences are intended to help students obtain an internship. Majors in Human Development and Family Studies only.
Gen Ed: EE- Service Learning.
Grading status: Letter grade.

EDUC 593. Internship/Student Teaching. 1-12 Credits.
Internships are full-time, authentic, field-based experiences in an educational or professional setting. Preservice teachers are responsible for planning lessons, delivering instruction, assessing students, managing the classroom, and demonstrating their teaching effectiveness. All internships are devoted exclusively to the student's functioning in a professional capacity.
Gen Ed: EE- Academic Internship.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 2 total completions.
Grading status: Pass/Fail.

EDUC 595. Introduction to Exceptional Children. 3 Credits.
Permission of the instructor for nonmajors. Surveys giftedness and mental disabilities, emotional and behavioral disorders, learning disabilities, speech, hearing, vision, and physical impairments. Emphasizes the role of professionals, families, and the community in supporting the whole child.
Grading status: Letter grade.

EDUC 601. Education Workshops. 1-3 Credits.
Permission of the program director. Workshops designed around education topics primarily for licensed K-12 teachers.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 5 total completions.
Grading status: Letter grade.

EDUC 614. Innovative and Engaging Teaching. 3 Credits.
Introduction to the teaching profession including a focused, program-long emphasis on innovative, authentic, and resource-informed teaching. Includes engagement with 21st-century learning skills.
Grading status: Letter grade.

EDUC 615. Schools and Community Collaboration. 3 Credits.
Course explores the symbiotic relationship between schools, families, and communities through a historical and sociocultural lens. Students participate in a community-based field experience.
Gen Ed: EE- Field Work, US.
Grading status: Letter grade.

EDUC 616. Teaching Early English Language Arts. 3 Credits.
Course focuses on ELA pedagogy, grades kindergarten through second grade. Course emphasizes best practices in foundations of reading and writing, cross-disciplinary concepts, and meaningful inquiry-based learning experiences.
Grading status: Letter grade.

EDUC 617. Teaching in the Middle School. 3 Credits.
Provides students with an introduction to the history, philosophy, and attributes of schools and curriculum specifically designed for young adolescents with attention to their developmental characteristics and needs as learners.
Gen Ed: SS, EE- Service Learning.
Grading status: Letter grade.

EDUC 626. Pedagogical English Grammar for ESL Teachers. 3 Credits.
Enhances foreign and second language educators' understanding of English grammar, expands their skills in linguistic analysis, and helps them develop a more pedagogically sound approach to the teaching of English grammar.
Grading status: Letter grade.

EDUC 627. Pedagogical Linguistics for ESL Teachers. 3 Credits.
Provides future English as a second language teachers with advanced concepts in linguistics and comparative linguistics. Topics such as phonology and morphology will be covered.
Grading status: Letter grade.

EDUC 628. Teaching English Language Learners. 3 Credits.
Provides students with an introduction to the history, philosophy, and attributes of schools and curriculum specifically designed for young adolescents with attention to their developmental characteristics and needs as learners.
Gen Ed: US.
Grading status: Letter grade.

EDUC 629. Language Minority Students: Issues for Practitioners. 3 Credits.
Permission of the instructor. Explores issues of culture and language associated with teaching English as a second language.
Grading status: Letter grade
Same as: ANTH 629.

EDUC 685. Teaching Mathematics in the Elementary Grades. 3 Credits.
This course emphasizes the interconnection of a classroom/school and society, the role of cultural beliefs in education, and mathematics instruction.
Grading status: Letter grade.

EDUC 686. Teaching Science in the Elementary Grades. 3 Credits.
This course emphasizes the interconnection of classroom/school and society, the role of cultural beliefs in education, and science instruction.
Grading status: Letter grade.

EDUC 687. Teaching Social Studies in the Elementary Grades. 3 Credits.
This course emphasizes the interconnection of classroom/school and society, the role of cultural beliefs in education, and social studies instruction.
Grading status: Letter grade.

EDUC 688. Teaching Intermediate English Language Arts, Grades 3-6. 3 Credits.
This course emphasizes the interconnection of classroom/school and society, the role of cultural beliefs in education, and English language arts instruction.
Grading status: Letter grade.

EDUC 689. Foundations of Special Education. 3 Credits.
This course provides an advanced introduction to key concepts, issues, and service delivery approaches pertaining to the educational needs of students with high incidence disabilities.
Grading status: Letter grade.

EDUC 691H. Honors Seminar in Education. 3 Credits.
Restricted to honors candidates in the School of Education. Required for graduation with honors in education. Integration of critical analysis of selected educational themes, introduction to methods of educational research, and intensive work in skills of reading critically and writing.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

EDUC 694H. Honors Thesis in Education. 3 Credits.
Required of all candidates for graduation with honors in education. Preparation of an honors thesis under the direction of a member of the School of Education faculty and an oral examination on the thesis.
Requisites: Prerequisite, EDUC 691H; A grade of B or better in EDUC 691H is required to take this course.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

EDUC 697. Education Minor Capstone Course. 3 Credits.
Student completes a major project in education. Course involves discussion about the changing and contested goals of education, how student projects are implicated in these complexities, and how the projects may be articulated in terms of policy change.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

EDUC 698. Internship in Human Development and Family Studies. 9 Credits.
Course provides an integrative learning experience in which HDFS students apply academic learning acquired in previous coursework to real-life situations encountered in the field. The internship serves as the capstone of the HDFS major. Majors in Human Development and Family Studies only. Course previously offered as EDUC 588.
Requisites: Prerequisites, EDUC 181, 408, and 583.
Gen Ed: EE- Academic Internship, EE- Service Learning.
Grading status: Letter grade.

Graduate-level Courses

EDUC 701. Practica Student Internship. 1-12 Credits.
Provides students the opportunity to observe and become involved with all aspects of teaching and schools within their content area. Previously offered as EDUC 693.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 2 total completions.
Grading status: Letter grade.

EDUC 702. Introduction to Strengths-Based School Counseling. 3 Credits.
Introduction to the counseling profession and ethical codes. Primary focus on the history and ethical practice of school counseling, specifically the Strengths-Based School Counseling framework.
Grading status: Letter grade.

EDUC 703. Theories and Techniques of Counseling. 3 Credits.
School Counseling students only. Explores theories and theory-based techniques of counseling, with emphasis on theory as a means of conceptualizing behavior change in the counseling process.
Grading status: Letter grade.

EDUC 704. Promoting Career Development. 3 Credits.
Master of Education in School Counseling majors only. Course examines theories and models of career development, school transitions, college access/college admissions counseling, and educational policy. Students will utilize action plans that include assessment tools, information sources, and technology for diverse K-12 school communities.
Grading status: Letter grade.

EDUC 705. Internship in School Counseling and Consultation. 3-9 Credits.
Places students in counseling and consultation under supervision in a school setting in order to develop competencies in individual counseling, group counseling, and consultation. May be repeated for credit for a maximum of 12 credit hours.
Requisites: Prerequisites, EDUC 703 and 712; Permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

EDUC 706. Collaboration and Leadership in School Counseling. 3 Credits.
Students are required to have taken 18 hours in counseling courses. Emphasizes the collaboration and leadership skills needed to effectively organize and implement a comprehensive school counseling program.
Grading status: Letter grade.

EDUC 707. Promoting Cultural Competence and Social Justice in School Counseling. 3-6 Credits.
Permission of the instructor. Explores the cognitive and affective considerations of counseling in culturally different social systems. This includes ways to incorporate specific sociocultural dimensions into the counseling process.
Grading status: Letter grade.

EDUC 708. School Consultation Methods. 3-12 Credits.
Examines various models of consultation and the role of the consultative model in the schools and related agencies; uses role playing and experience in the school. May be repeated for credit.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

EDUC 709. Seminar in Applied Investigations. 3 Credits.
Permission of the instructor. Provides opportunities to expand understanding of research in education, psychology, counseling, and school psychology.
Grading status: Letter grade.

EDUC 710. Introductory Statistical Methods. 3 Credits.
Introduction to descriptive and inferential statistics applicable to the design and analysis of research in the social, behavioral, and health sciences. Topics include descriptive statistics, hypothesis testing, statistical power, confidence intervals, ANOVA, and multiple regression. Students use statistical software (R) to conduct analyses, with examples drawn largely from education and human development.
Grading status: Letter grade.

EDUC 711. Promoting Academic Development. 3 Credits.
The course addresses the school counselor's role in promoting student academic development. Interventions for impacting academic achievement at both the individual and systems level are explored.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

EDUC 712. Prepracticum in School Counseling. 3 Credits.
School counseling graduate students only. Develops basic strengths-based counseling and interviewing techniques at specified levels of mastery through role playing, feedback sessions, and other experiential counseling activities to enhance counselor competence.
Requisites: Prerequisites, EDUC 702 and 703; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

EDUC 713. Tests and Measurements. 3 Credits.
Studies basic concepts in measurement and their application in the use and interpretation of tests. The student may be required to purchase tests.
Requisites: Prerequisite, EDUC 702.
Grading status: Letter grade.

EDUC 714. Group Counseling and Guidance. 3 Credits.
Permission of the instructor. Applies counseling theory and research to the organization and implementation of group work (e.g., guidance, task, psychoeducational, counseling groups) in schools.
Grading status: Letter grade.

EDUC 716. Technology across the Curriculum. 3 Credits.
Explores the field of educational technologies, situating the field within the context of historical and theoretical foundations, current practices, and future directions.
Grading status: Letter grade.

EDUC 717. Theory and Research in Education Technology. 3 Credits.
This course is based on the review and critique of research and theoretical literature in the field of education technology. Students will conduct critical analyses of theory, research, and methodology in the field of education technology and design a proposed education technology research study.
Grading status: Letter grade.

EDUC 718. Psychological Assessment and Intervention I. 1-3 Credits.
Permission of the instructor. Addresses knowledge and skills in techniques of observation, interviewing, assessment of environment, intelligence, achievement, perceptual motor skills, and interpersonal perceptions. May be repeated for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 719. Psychological Advanced Assessment and Intervention II. 3 Credits.
Permission of the instructor. Addresses knowledge and skills in techniques of observation, interviewing, assessment of environment, intelligence, achievement, perceptual motor skills, and interpersonal perceptions.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 720. Seminar in Professional School Psychology. 2-3 Credits.
Deals with the goals and roles of school psychology, ethical concerns, privileged information, certification and licensing, and other relevant areas. May be repeated for credit.
Grading status: Letter grade.

EDUC 721. Externship in School Psychology. 1-6 Credits.
Permission of the instructor. Provides supervised observation and participation in school psychological services in schools and school-related field facilities. May be repeated for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 722. Master's Internship in School Psychology. 1-6 Credits.
Provides supervised full-time field experience for master's students in school psychology in a school setting.
Requisites: Prerequisite, EDUC 721; Permission of the instructor.
Grading status: Letter grade.

EDUC 723. Advanced Assessment and Intervention Approaches for Students with Traumatic Brain Injury. 3 Credits.
Assessment and treatment of students who have sustained traumatic brain injury; for school and clinical psychologists.
Grading status: Letter grade.

EDUC 724. Parent and Community Engagement for the School Executive. 3 Credits.
Focus on the environmental context of family and community engagement. Research-based best practices applied to an identified local school site, where analyses of school/district initiatives, policies, and practices are examined through a social justice lens. Review federal/state legislation and compliance to ensure the rights of parents and guardians.
Grading status: Letter grade.

EDUC 725. Supervisory Practice for the School Executive. 3 Credits.
Admission to the master of school administration program required. Focuses on the role of school administrators in facilitating the continuous improvement of the clinical supervision process and on a variety of observation and conferencing skills that school leaders may employ with teachers and other support staff.
Grading status: Letter grade.

EDUC 727. The Social Context of Educational Leadership. 3 Credits.
Provides retrospective, contemporary, and prospective examinations of the social, cultural, political, and philosophical contexts from which the current issues that affect schools and schooling have evolved.
Grading status: Letter grade.

EDUC 728. Practicum in ESL II/Foreign Languages. 3 Credits.
Provides an internship to teach ESL/FL under the supervision of an experienced ESL teacher.
Grading status: Letter grade.

EDUC 729. Culture and Politics in Second Language Education. 3 Credits.
This course provides an overview of current issues in second language teaching (ESL, foreign languages, and bilingual education) with a focus on culture, politics, and diversity.
Grading status: Letter grade.

EDUC 730. Curriculum Leadership for the School Executive. 3 Credits.
Applies curriculum skills required of school executives today, including the development of an alternative school schedule with a different curricular focus; analysis of test data to discern achievement trends; test item deconstruction; instructional mapping; and the creation of a group-based curriculum management plan for a specific elementary or secondary school.
Grading status: Letter grade.

EDUC 731. Organizational Management for the School Executive. 3 Credits.
This course provides pre-service school executives with a skill set and practical experiences that address effective organizational management behaviors. Topics include time management, budget and resource allocation, use of data to assess decisions and initiatives, implementation of appropriate rules and procedures, and open communication with all stakeholders.
Grading status: Letter grade.

EDUC 732. Group Dynamics for the School Executive. 3 Credits.
Experiential course that focuses on the development of an understanding and skills for working with various organizational groups. Focus is on teams, leadership of teams, team problem solving, and team decision making.
Grading status: Letter grade.

EDUC 733. Advanced ESL Methods and Strategies for Humanities. 3 Credits.
This course will prepare teacher candidates for teaching emergent bilingual students at the elementary and secondary level. This course builds upon skills and methods introduced in EDUC 628 with a focus on language arts and social studies content.
Requisites: Prerequisite, EDUC 628.
Grading status: Letter grade.

EDUC 734. Planning in Educational Organizations. 3 Credits.
Examines a conceptual and practical approach to planning in educational organizations. Includes a focus on environmental scanning, futures research, and strategic planning.
Grading status: Letter grade.

EDUC 735. Seminar on Internship I. 3 Credits.
Students examine a variety of issues that arise during their internship. Heavy emphasis on the creation of required artifacts needed for both program completion and State licensure.
Grading status: Letter grade.

EDUC 736. Seminar and Supervised Internship in Educational Administration I. 3-6 Credits.
Provides supervised internship in school administration to facilitate the student's progress toward certification in the principalship. May be repeated for credit.
Grading status: Letter grade.

EDUC 737. Seminar on Internship II. 3 Credits.
In addition to dealing with a variety of issues that candidates are dealing with in their internships, there is a heavy emphasis on creation of required artifacts needed for both program completion and State Licensure.
Grading status: Letter grade.

EDUC 738. Seminar and Supervised Internship in Educational Administration II. 3-6 Credits.
Required preparation, six semester hours in educational administration, including EDUC 834. Permission of the instructor. Provides supervised internship in school administration to facilitate the student's progress toward certification in the principalship. May be repeated for credit.
Requisites: Prerequisite, EDUC 834.
Grading status: Letter grade.

EDUC 739. Global Child: Development and Education. 3 Credits.
Examines issues, policies, and practices related to children's development and education in a global context. Universal documents and declarations will serve as frameworks for review of the status of children's education and well-being globally.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 740. Cultural Leadership for the School Executive. 3 Credits.
Course focuses on the importance of school executives' understanding the organizational culture of their schools and then exerting symbolic leadership strategies to reshape that culture so it is more conducive to promoting the academic achievement of students.
Grading status: Letter grade.

EDUC 741. School Inquiry and Reform for the School Executive. 3 Credits.
Course focuses on the use of various types of data that can be used to impact decisions regarding school improvement and increased student achievement. It also introduces a number of proven strategies and tactics for improving schools.
Grading status: Letter grade.

EDUC 742. Law for the School Executive. 3 Credits.
Course focuses on the basic legal principles that school executives need to know and follow in their day-to-day leadership activities.
Grading status: Letter grade.

EDUC 743. Teaching Secondary Students with Disabilities. 1 Credit.
Following a case format and utilizing online instruction, M.A.T. students learn to teach secondary learners in inclusion settings.
Grading status: Letter grade.

EDUC 744. Assessment Techniques for ESL/EC Teachers. 3 Credits.
Covers the knowledge and abilities necessary to create and interpret assessments of academic progress, engagement, and motivation. Emphasis on (a) technology and (b) assessments for ESL and special needs students.
Requisites: Prerequisite, EDUC 628.
Grading status: Letter grade.

EDUC 745. Contexts of Education II. 2 Credits.
Provides a weekly seminar (part two of a two-semester sequence) for interns with full-time teaching responsibilities. Interns will connect their teaching experience to social, cultural, and philosophical issues in education.
Requisites: Prerequisite, EDUC 759.
Grading status: Letter grade.

EDUC 746. Practica Student Internship. 9 Credits.
Permission of the instructor. Provides full-time internship in teaching in the content area under the supervision of experienced teachers and a university supervisor for the semester.
Grading status: Letter grade.

EDUC 747. Methods and Materials for Teaching Secondary/K-12 Subjects II. 3 Credits.
Teaches student teachers to be aware of trends and issues in their content area in North Carolina and the nation, therefore improving their understanding and skills in curriculum development and instruction.
Grading status: Letter grade.

EDUC 748. Advanced Leadership. 3 Credits.
Course restricted to graduate students in the M.A.T. program. The course will provide a foundation for advanced students to consider what it means to participate in schools as educational leaders. This course builds on experience gained from the student teaching internship and is one-half of the capstone module of the MAT program of study.
Grading status: Letter grade.

EDUC 749. Advanced Exploration of Families, Schools and Communities. 3 Credits.
Admission into the M.A.T. program required. This advanced course examines strategies for effective communication and collaboration with families, professional team members, and school resources. Topics will include a return to contextual issues and reflection on initial preparation experiences. This course is one-half of the capstone module of the MAT program of study.
Grading status: Letter grade.

EDUC 750. Empowerment Strategies for the School Executive. 3 Credits.
Course focuses on the factors that hinder both school executives and their teachers from feeling empowered to fulfill their leadership potential and examines a variety of strategies for overcoming those challenges.
Grading status: Letter grade.

EDUC 751. Introduction to Teaching Diverse Learners. 3 Credits.
Admission to the M.A.T. program required. Introduces the principles of effective teaching with emphasis on the first year of teaching.
Grading status: Letter grade.

EDUC 752. College Access and College Admissions Counseling. 3 Credits.
Examines college access/college admissions counseling. Students will utilize action plans that include assessment tools, information sources, and technology to promote college readiness for diverse K-12 school communities.
Grading status: Letter grade.

EDUC 753. Introduction to Curriculum. 3 Credits.
Open to graduate students in education or permission of the instructor. Surveys the nature of curriculum development and contemporary changes as they relate to social aims, learner characteristics, and social problems.
Grading status: Letter grade.

EDUC 754. Teaching, Teachers and Teacher Education. 3 Credits.
In this course, students will examine seminal literature related to teachers, teaching and teacher education in the United States. We will focus on examining the who, what, where, how and why of PK-12 teachers, teaching and teacher education, exploring this through both historical and contemporary lenses.
Grading status: Letter grade.

EDUC 755. Classroom Assessment. 3 Credits.
Course restricted to graduate students in the M.A.T. program. Permission of the instructor for nonmajors. This course provides prospective secondary teachers with a conceptual understanding of assessment to promote all students' school achievement and adjustment in the 21st century.
Grading status: Letter grade.

EDUC 756. Principles and Methods in Parent Education and Involvement. 3 Credits.
Examines principles, theory, models, and methods for work with parents and families in educational settings, with relevant research and practical applications.
Grading status: Letter grade.

EDUC 757. College Teaching. 3 Credits.
Introduces students to the planning of courses and educational programs for college students. Emphasis is on a systematic approach to developing, implementing, and evaluating instruction. This course is intended for graduate students in any academic department who plan teaching careers.
Grading status: Letter grade.

EDUC 758. Immigration and Education. 3 Credits.
Investigates social (including political, economic, legal, and demographic) and cultural impacts on immigration and education.
Grading status: Letter grade.

EDUC 759. Teacher Leadership for a Diverse Society. 3 Credits.
Course restricted to graduate students in the M.A.T. program. Permission of the instructor for nonmajors. For educational institutions to be effective in a diverse society, teachers must take on key leadership roles. This course helps prepare future teachers for such leadership.
Grading status: Letter grade.

EDUC 760. Methods and Materials for Teaching Secondary/K-12 Subjects I. 4 Credits.
Prepares students to teach discipline-area material at the secondary level. The immediate purpose of this course is to prepare participants for full-time student teaching during the spring semester.
Grading status: Letter grade.

EDUC 762. Child Development and Disability. 3 Credits.
Emphasizes typical development and developmental deviation exhibited by children in cognitive, language, social, and affective areas.
Grading status: Letter grade.

EDUC 763. Biological Bases of Children's Development. 3 Credits.
Focuses on the theory and research related to the biomedical and psychological aspects of exceptionality.
Grading status: Letter grade.

EDUC 764. Current Issues in Literacy. 3 Credits.
The main purpose of this seminar is to engage students in the synthesis and critical examination of current research and policy issues in literacy education.
Grading status: Letter grade.

EDUC 765. Global Child: Development and Education. 3 Credits.
Course examines contemporary issues, policies, and practices related to children's development and education in a global context. Universal documents and declarations like the U.N. Convention on the Rights of the Child, Education for All, and the Millennium Goals will serve as frameworks for review of the status of children's education and well-being globally.
Grading status: Letter grade.

EDUC 766. Practicum in School Counseling. 1-9 Credits.
Develops individual counseling skills and an understanding of the school as a setting for counseling through an apprenticeship experience.
Requisites: Prerequisites, EDUC 703 and 712; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

EDUC 767. Educational Innovation and Technology, Integrative Seminar I. 3 Credits.
First of two part course to guide students in integrating all of their program experiences. This is an intensive discussion seminar, largely constructed around the contributions and concerns of the students.
Grading status: Letter grade.

EDUC 768. Education in Latin America. 3 Credits.
Exploration of the relationship between national development and education. The process through which groups form their cultural and social identities. Theoretical perspectives drawn from development studies, globalization and comparative education.
Grading status: Letter grade
Same as: LTAM 768.

EDUC 769. Schooling of Latinos. 3 Credits.
Exploration of racial/ethnic differences in educational achievement and persistence in school including language and schooling and the interplay of race, gender, and class.
Grading status: Letter grade
Same as: LTAM 767.

EDUC 770. Multicultural Ways of Knowing. 3 Credits.
Dialectically explores narratives about race, class, and gender through critical, multicultural, aesthetic, and postmodern lenses.
Grading status: Letter grade.

EDUC 771. Seminar in Social Foundations of Education. 1 Credit.
Explores topics in the social and philosophical context of American public education.
Grading status: Letter grade.

EDUC 772. Educational Sociology. 3 Credits.
Applies sociological theory and research to problems of concern to educators.
Grading status: Letter grade.

EDUC 773. Social Change and Education. 3 Credits.
Analyzes social change within a theoretical framework and describes its probable impact on education. Considers the role of the school in the development of human capital.
Grading status: Letter grade.

EDUC 774. Social and Educational History of the United States. 3 Credits.
Provides a survey of the social forces influencing the development of American education from the period of colonization to the early years of the 20th century.
Grading status: Letter grade.

EDUC 775. Introduction to Ethics and Education. 3 Credits.
Identifies issues arising in the professional activities of education personnel in the context of systematic consideration of the nature of ethical choice.
Grading status: Letter grade.

EDUC 776. Gender, Race, and Class Issues in Education. 3 Credits.
Provides an understanding of (and remedies for) the racism, sexism, and class divisions that schools can perpetuate. Examines curriculum, counseling, and interaction in classrooms; structure and leadership; and fundamental assumptions.
Grading status: Letter grade
Same as: WGST 776.

EDUC 777. Gender, Policy, and Leadership in Education. 3 Credits.
Covers feminist critiques of organizational and political power structures in readings and discussions leading to group and individual research projects.
Grading status: Letter grade
Same as: WGST 777.

EDUC 778. Teaching English to Speakers of Other Languages. 3-6 Credits.
TESOL program aimed to prepare future teachers to lead their own English Language Learning classroom. Part 1: pedagogy, independent learning & lesson planning. Part 2: lesson & course planning & practice. 4 skills: listening, speaking, reading & writing.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

EDUC 779. Contemporary Philosophies of Democratic Schooling. 3 Credits.
Provides a comparative study of current philosophies of education, with particular attention to their impact on solutions offered to problems currently recognized in American education.
Grading status: Letter grade.

EDUC 780. Grammar & Applied Linguistics for ESL Teachers. 3 Credits.
This online course will help prepare teachers and teacher candidates for teaching emergent bilingual students at the elementary and secondary level. This course will provide teachers fundamental knowledge and practice of technical English grammar, phonology, morphology, phonetics, syntax and semantics. Participants will also look at the socio-cultural aspects of linguistics and how it is connected to identity and a sense of "place".
Requisites: Prerequisite, EDUC 628.
Grading status: Letter grade.

EDUC 781. Theories and Research in Human Development. 3 Credits.
Permission of the instructor. Covers the basic theories and the research bases for instructional decisions. This is an advanced-level course in human development.
Grading status: Letter grade.

EDUC 782. Psychology of Learning in the School. 3 Credits.
Studies learning in the school setting, with emphasis on fundamental concepts, issues, and evaluation of materials and experiences.
Grading status: Letter grade.

EDUC 783. Advanced ESL Methods and Strategies for STEM. 3 Credits.
This course will prepare teacher candidates for teaching Science and Mathematics and STEM content to emergent bilingual students at the elementary and secondary level. Specifically, it will focus on challenges emergent bilingual students may face when learning science and math in U.S. K-12 classrooms due to the language in which and the worldview from which the content is being taught.
Requisites: Prerequisite, EDUC 628.
Grading status: Letter grade.

EDUC 784. Intermediate Statistical Methods. 3 Credits.
The second course in statistics for the behavioral, social, and health sciences. Building from a review of statistical inference and power analysis in simple linear regression, we work through standard topics in multiple linear regression, leading to specialized topics including logistic regression, fixed effects, and longitudinal / panel data.
Requisites: Prerequisite, EDUC 710; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

EDUC 785. Program Evaluation in Education. 3 Credits.
An examination of major approaches to program evaluation with emphasis on differences between evaluation and research.
Requisites: Prerequisites, EDUC 710 and 871.
Grading status: Letter grade.

EDUC 786. Problems in Educational Psychology. 3-6 Credits.
Permission of the instructor. Study and development of original investigations in the area of educational psychology.
Grading status: Letter grade.

EDUC 787. Problems in Educational Measurement. 3 Credits.
Provides an opportunity for advanced doctoral students to study a particular problem area in educational measurement under the supervision of a faculty mentor. May be repeated for credit.
Requisites: Prerequisites, EDUC 710 and 829; Permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

EDUC 788. Instructional Theories. 3 Credits.
Examines the nature and application of various theories of instruction to instructional goals, individual differences, teaching strategies, sequencing, motivation, and assessment.
Requisites: Prerequisite, EDUC 744.
Grading status: Letter grade.

EDUC 789. Educational Innovation and Technology, Integrative Seminar II. 3 Credits.
Second of two-part course to guide students in integrating all of their program experiences. This is an intensive discussion seminar, largely constructed around the contributions and concerns of the students.
Grading status: Letter grade.

EDUC 790. Special Topics in Education - Graduate. 3 Credits.
This course provides graduate students the opportunity for intensive exploration and discussion of selected topics in education.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 791. Providing Specially Designed Instruction. 3 Credits.
This course includes instruction in developing and implementing Tier 3 interventions and providing specially designed instruction to meet the needs of students with Individualized Education Programs (IEPs). The course builds on information presented in methods classes. In this course, students further learn to plan for and provide more intensive interventions based on data provided through multiple forms of assessment. Admission to the MAT sequence for special education required.
Grading status: Letter grade.

EDUC 792. Research on Technology. 3 Credits.
Explores and discusses the application of emerging technologies in education.
Grading status: Letter grade.

EDUC 793. High-Leveraged Practices in Special Education with a Focus on Literacy Instruction. 3 Credits.
The course examines characteristics of students with mild-to-moderate disabilities in the area of literacy. The primary focus is on determining instructional literacy needs for students with disabilities as well as those receiving Tier 2 and 3 interventions through a multi-tiered system of support (MTSS) framework. The course covers how to target literacy instruction to meet individual needs based on formative assessments paired to high-leveraged and evidence-based practices. Admission to the MAT sequence required to enroll.
Grading status: Letter grade.

EDUC 794. High-Leveraged Practices in Special Education with a Focus on Mathematics Instruction. 3 Credits.
The course examines specific characteristics of students with mild-to-moderate disabilities in the area of mathematics. The primary focus is on determining instructional mathematics needs for students with disabilities as well as those receiving Tier 2 and 3 interventions through a multi-tiered system of support (MTSS). The course covers how to target mathematics instruction to meet individual needs based on formative assessments paired to high-leveraged and evidence-based practices. Admission to the MAT sequence required.
Grading status: Letter grade.

EDUC 796B. Independent Study Doctoral Level. 1-12 Credits.
Independent study at the doctoral level.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 12 total completions.
Grading status: Letter grade.

EDUC 796A. Independent Study Master's Level. 1-12 Credits.
Permission of the instructor.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 12 total completions.
Grading status: Letter grade.

EDUC 797. Collaboration with Families and Other Professionals. 3 Credits.
Instructs students about the resources available to them, their students, and their students' families. Students will develop skills in working with parents and professionals as partners in the instruction and planning of programs for students with learning disabilities.
Grading status: Letter grade.

EDUC 798. Master's Internship in Learning Disabilities Education. 1-12 Credits.
Provides supervised experience in a phase of special education or literacy studies appropriate to the student's qualifications and future educational goals. May require a minimum of 300 clock hours at the internship site per semester depending on student placement. See your advisor for credit hours needed.
Repeat rules: May be repeated for credit. 12 total credits. 12 total completions.
Grading status: Letter grade.

EDUC 800. Diversity in Education. 3 Credits.
Restricted to graduate students in the M.A.T. program. Permission of the instructor for nonmajors. Along with providing overview of schools, their structure, and their role in American society, the course introduces students to the necessity of differentiated instruction based on race, culture, special education, and English as second language learners.
Grading status: Letter grade.

EDUC 802. Foundations of Educational Research. 3 Credits.
Applies the philosophies of science, social science, language, and history (including recent theoretical issues) to the understanding of how educational research is conducted and what contribution it makes.
Grading status: Letter grade.

EDUC 803. Proseminar in Education. 3 Credits.
Students develop an in-depth understanding of scholarly traditions within education, histories of curricular area and current issues facing these areas and education as a whole, and application of these histories and issues to classrooms and schools.
Grading status: Letter grade.

EDUC 804. Seminar in Culture, Curriculum, and Change. 3 Credits.
Open to doctoral students only. Critical examination of topics and policy issues related to curriculum and educational change, considered in cultural context.
Grading status: Letter grade.

EDUC 805A. Professional Seminar I. 3 Credits.
Introductory seminar for graduate students. Review current issues in early childhood, special education, and literacy and introduces students to the research of current faculty members.
Grading status: Letter grade.

EDUC 805B. Professional Seminar II: Research and Scholarship in the Educational Sciences. 3 Credits.
Course explores history of psychological studies in education and examines areas of current inquiry such as cognition and learning, teaching and instruction, academic motivation, contextual influences, and theory-based intervention.
Grading status: Letter grade.

EDUC 806. Seminar in Applied Developmental Sciences and Special Education. 3 Credits.
Open to doctoral students only. Critical examination of theoretical and research issues related to learning, development, teaching, assessment, and quantitative methods of research, from a psychological perspective.
Grading status: Letter grade.

EDUC 807. Social Studies and Arts. 1-9 Credits.
Looks at social studies as a discipline that easily integrates other disciplines, particularly the arts, which includes literature. It emphasizes curriculum and instruction, as well as theoretical underpinnings.
Grading status: Letter grade.

EDUC 809. Problems in Special Education. 3 Credits.
Permission of the instructor. Provides an opportunity for post-master's students who wish to engage in supervised field and pilot research. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

EDUC 810. Psychology of Career Development. 3 Credits.
Open to doctoral students only. Reviews theories and research in the psychology of career development and counseling. Emphasis is on theory and implications for practice.
Grading status: Letter grade.

EDUC 811. Problems in School Counseling. 1-21 Credits.
Provides students the opportunity for directed study in school counseling.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

EDUC 812. Doctoral Practicum in School Counseling. 1-21 Credits.
Provides students experiences that may include working with individual, family, or group counseling and consultation.
Grading status: Letter grade.

EDUC 813. Doctoral Internship in School Counseling. 1 Credit.
Provides students a supervised professional predoctoral internship training experience in counseling.
Grading status: Letter grade.

EDUC 814. Supervision and Teaching in School Counseling. 3 Credits.
Enables students to gain supervision and teaching skills that will enhance their functions as professors and as leaders in counseling agencies. Strategies of practicum supervision are summarized and research literature is reviewed.
Grading status: Letter grade.

EDUC 815. Doctoral Seminar in School Counseling. 3 Credits.
Provides an in-depth appraisal of topics of theoretical and/or clinical nature that are of particular relevance to the field.
Grading status: Letter grade.

EDUC 816. Transformational Education. 3 Credits.
Examines 20th-century schools that have attempted to redefine and deepen United States democracy, embracing pedagogies and values that offer alternatives to mainstream education.
Grading status: Letter grade.

EDUC 817. Introduction to Educational Research. 3 Credits.
Course provides introduction to purposes of educational research, roles of theories, hypotheses, questions, and ethical issues. While being exposed to a range of research designs, students are to become critical reviewers and develop research proposals or a master's thesis.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

EDUC 818. School Psychology Intervention and Assessment III. 3 Credits.
We will develop knowledge and skills that relate to the implementation of evidenced-based interventions. This innovation implementation course is based on Forman (2009).
Grading status: Letter grade.

EDUC 819. School Psychology Intervention and Assessment IV. 3 Credits.
This project-based course focuses on utilizing the fields of intervention research and social entrepreneurship to design a novel educational innovation.
Grading status: Letter grade.

EDUC 820. Doctoral Seminar in Professional School Psychology. 3 Credits.
Required preparation, appropriate courses. Permission of the instructor. Considers advanced topics in the field of school psychology such as professional issues, standards and ethics, and interdisciplinary relations.
Grading status: Letter grade.

EDUC 821. Doctoral Externship in School Psychology. 1-6 Credits.
Permission of the instructor. Supervised field placement experiences for doctoral-level students in school psychology, integrating training with field responsibilities at a systems level in schools and school-related settings.
Grading status: Letter grade.

EDUC 822. Doctoral Internship in School Psychology. 1-6 Credits.
Supervised doctoral internship in school psychology for advanced training in professional skills and research in schools and school-related settings.
Requisites: Prerequisite, EDUC 821.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

EDUC 823. Policy Development in Education. 3 Credits.
Graduate course about the political process and policy dynamics. With a focus on the U.S. domestic context, the course addresses the policy process in general and examines the workings of that process in education.
Grading status: Letter grade.

EDUC 824. Fundamentals of Educational Research. 3 Credits.
Explores and analyzes the range of educational research designs including experimental, correlational, survey, descriptive, case study, ethnography, narrative, policy, and longitudinal research.
Grading status: Letter grade.

EDUC 825. Development and Learning. 3 Credits.
Introduces influential theoretical approaches to the study of development and learning. Students learn how to apply various methodological approaches and theoretical frameworks. Readings include developmental psychology, learning sciences, and cultural anthropology.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

EDUC 826. Promoting Mental Health and Wellness in Schools. 3 Credits.
This course addresses the high-incidence mental health diagnostic categories in children and adolescents and the roles of administrators, school counselors, and other school support staff in supporting students with mental health diagnoses.
Grading status: Letter grade.

EDUC 827. Human Development. 3 Credits.
School of Education majors only. Emphasizes theories of child and adolescent development as well as research findings that aid in the understanding of human behavior and development.
Grading status: Letter grade.

EDUC 828. Educational Measurement and Evaluation. 3 Credits.
Identifies the basic concepts in measurement and evaluation, describes the role of evaluation in curriculum construction and revision, and describes the development and use of teacher-constructed tests.
Grading status: Letter grade.

EDUC 829. Applied Measurement Theory for Education. 3 Credits.
An examination of the logic and theory of educational measurement. Practical applications of measurement theory to the construction and use of a variety of educational measurement devices.
Grading status: Letter grade.

EDUC 830. Field Techniques in Educational Research. 3 Credits.
Introduces students to field research methods and analysis of qualitative data that focuses on the application of these techniques in evaluation and policy research.
Grading status: Letter grade.

EDUC 831. School Law: Justice and Equity. 3 Credits.
Required preparation, six semester hours of graduate school work in school administration. Provides an overview of the legal structure of education, liability, constitutional rights, contractual relationships, federal regulations, and collective action. May be repeated for credit.
Grading status: Letter grade.

EDUC 832. Politics of Education. 3 Credits.
Students study the politics surrounding the nation's largest public institution (education) along with the motivations and maneuvering of people with power to shape it.
Grading status: Letter grade.

EDUC 833. Development and Systems Leadership. 3 Credits.
Focused on the issues pertaining to personnel, planning, facilities, administrative applications of technology, superintendent/board relations, district-level curriculum and assessment issues, and creating and sustaining community inter-agency partnerships.
Grading status: Letter grade.

EDUC 834. Organizational Behavior and Theory in Education. 3 Credits.
Permission of the instructor. Analyze the theoretical assertions and empirical knowledge claims that have led to the dominant structures, power relationships, and performance expectations of American schools.
Grading status: Letter grade.

EDUC 835. Instructional Leadership for Supervision, Curriculum, and Technology. 3 Credits.
Provides fundamental knowledge of instructional design, techniques of teaching/learning, evaluation of the teaching/learning process, and ways in which school-based leaders can support excellence in classroom instruction.
Grading status: Letter grade.

EDUC 836. School Finance and Economic Equity. 3 Credits.
Covers the area of financing school corporations in the current economic and political setting, with emphasis on the interrelationships of educational, economic, and political decisions. May be repeated for credit.
Grading status: Letter grade.

EDUC 837. Cultural Aspects of Leadership and Instruction in School Reform. 3 Credits.
Designed to provide students with perspectives regarding the interplay of cultural issues that challenge the partnership between administration and instruction.
Grading status: Letter grade.

EDUC 838. School Governance. 3 Credits.
Permission of the instructor. Focuses on governance and policy at the school building level and how district-wide governance, state educational policy, federal involvement in education, and educational special interest groups impact school-sized governance.
Grading status: Letter grade.

EDUC 839. The Excellent School Seminar I. 3 Credits.
Permission of the instructor. Research and models on high-performing organizations, instructionally effective schools and school systems, and national school reform efforts presented in the context of traditional and emerging organizational theory and research. .
Grading status: Letter grade.

EDUC 840. Advanced Leadership Theories. 3 Credits.
Requires students to integrate previous studies to focus on management applications, dilemmas, and conflicts.
Requisites: Prerequisites, EDUC 727, 750, 832, and 834.
Grading status: Letter grade.

EDUC 841. Development of a Research Proposal. 3 Credits.
Requires students to integrate previous studies to focus on theory, inquiry, and organizational practice.
Requisites: Prerequisites, EDUC 727, 832, and 834.
Grading status: Letter grade.

EDUC 842. The Excellent School Seminar II. 3 Credits.
Permission of the instructor. Research and models on high-performing organizations, instructionally effective schools and school systems, and national school reform efforts presented in the context of traditional and emerging organizational theory and research.
Grading status: Letter grade.

EDUC 843. Seminar in Educational Studies. 3 Credits.
Focuses on educational issues and theories involving culture, curriculum, and change. Issues and theories addressed will vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

EDUC 844. Advanced Seminar and Supervised Internship in Educational Administration. 1-6 Credits.
An advanced internship and seminar relevant to the program in administration and to the student's progress toward advanced administrative certification. May be repeated for credit.
Requisites: Prerequisites, EDUC 727, 750, 832, 834; Permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 851. Curriculum Theory. 3 Credits.
Relates curriculum development to relevant theories and research in humanistic and behavioral studies. This is an advanced course.
Grading status: Letter grade.

EDUC 852. Instructional Systems Development. 3 Credits.
Delineates strategies for developing instructional systems, including needs assessment, job analysis, goal setting, use of criterion tests, delivery systems, project management, and evaluation of learners and programs.
Grading status: Letter grade.

EDUC 853. Supervision and Instruction. 3 Credits.
Examines the history, nature, and purposes of educational supervision, with an emphasis on the supervisor's role in improving teaching, curriculum development, and staff development.
Grading status: Letter grade.

EDUC 854. Seminar in Curriculum and Instruction. 3 Credits.
Review and interpretation of existing research in the area of curriculum and instruction.
Grading status: Letter grade.

EDUC 855. Problems in Curriculum and Instruction. 3-6 Credits.
Required preparation, two courses in graduate education. Provides an opportunity for advanced students to do independent study under supervision in an area of study. (Sections include early childhood, intermediate, secondary subjects, media, literacy, and general.) May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

EDUC 856. Practicum in Curriculum and Instruction. 3-6 Credits.
Experiences may include projects, field studies, or internships with one of a number of agencies concerned with education. (Sections include early childhood, intermediate, secondary subjects, media, literacy, and general.)
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

EDUC 857. Research Apprenticeship. 1-6 Credits.
Research apprenticeship for all students in the Curriculum and Instruction Ed.D. program. Individually arranged with a faculty advisor and an appropriate placement.
Grading status: Letter grade.

EDUC 861. Seminar in Special Education. 3 Credits.
Emphasis on developmental deviation exhibited by exceptional children in cognitive, language, social, and affective development.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 862. Teaching and Personnel Development. 3 Credits.
Focuses on teaching and personnel development at the preservice and inservice levels. Topics include: application of adult learning principles and styles; syllabus development; technology and teaching; supervision; mentorship and research innovations in college teaching.
Grading status: Letter grade.

EDUC 863. Supervised Post-Master's Internship in Special Education. 1-21 Credits.
Permission of the instructor. A full-time field placement under the joint direction of a University staff member and a selected professional at the internship site.
Grading status: Letter grade.

EDUC 864. Families, Schools, and Child Development: Successful Intervention Strategies. 3 Credits.
The purpose of this seminar is to provide an introduction to the theory, research, methods, and current issues related to the influence of families and schools on children's development.
Grading status: Letter grade.

EDUC 865. College Teaching Internship. 1-3 Credits.
Open to graduate students only. Permission of the instructor. This course is designed to give doctoral and masters' students experience at college teaching prior to taking on full responsibility for a class of her/his own. The student will fully participate as a teaching assistant in the class of an experienced tenured, tenure track, or clinical professor.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

EDUC 866. Policy to Practice. 3 Credits.
Examine relationships between broader social, economic, and political currents and the chosen instruments for education reform. Students examine what purposes stakeholders believe schools serve and how policy is/isn't translated into practice.
Grading status: Letter grade.

EDUC 867. Issues in Educational Policy and Research. 3 Credits.
Course familiarizes students with public policy in education and its influence on schools and schooling. Students learn methodological perspectives of education policy research. Examine major policy initiatives in education.
Grading status: Letter grade.

EDUC 868. Advanced Qualitative Analysis and Interpretation. 3 Credits.
This advanced seminar focuses on the needs of doctoral students immersed in qualitative research, with an emphasis on data analysis and representation.
Grading status: Letter grade.

EDUC 871. Seminar in Education. 3 Credits.
Required preparation, two courses in graduate education. Permission of the instructor. Provides for seminar treatment of appropriate topics.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 873. Problems in the Philosophical Foundations of Education. 3-21 Credits.
Provides an opportunity for advanced doctoral students to do independent study under supervision.
Requisites: Prerequisite, EDUC 779.
Grading status: Letter grade.

EDUC 874. Problems in the Sociological Foundations of Education. 3-21 Credits.
Provides an opportunity for advanced doctoral students to do independent study under supervision.
Requisites: Prerequisite, EDUC 772.
Grading status: Letter grade.

EDUC 876. Histories of School and Schooling. 3 Credits.
Course provides an understanding of the history of American public education, its current status and research in education based in a larger context of society, and its schools and schooling practices.
Grading status: Letter grade.

EDUC 877. Critical Multicultural Education. 3 Credits.
Examination of the current issues in multicultural education, cultural study, and the development of curriculum for critical multicultural education.
Grading status: Letter grade.

EDUC 878. Seminar in Educational Studies. 3 Credits.
Involves an in-depth exploration of theories and issues involving culture, curriculum, and change. Topics will vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 881. Seminar in Human Development and Individual Differences. 3 Credits.
Required preparation, at least one course in human development at the graduate level or permission of the instructor. Analyzes research data and theoretical positions pertaining to individual differences in human development in the educational setting.
Grading status: Letter grade.

EDUC 882. Seminar in Human Learning and Cognition. 3 Credits.
Required preparation, one or two courses in educational and developmental psychology. Studies theoretical aspects and practical implications of psychologies of learning.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 883. Case Study Methods. 3 Credits.
Provides students with an overview of the methodology of case study research and to enhance students' skills in using research techniques.
Grading status: Letter grade.

EDUC 884. Statistical Analysis of Educational Data III. 3 Credits.
An extension of the general linear model to analysis of educational data with multiple dependent variables, with computer applications.
Requisites: Prerequisites, EDUC 710 and 784.
Grading status: Letter grade.

EDUC 885. Secondary Data Analysis. 3 Credits.
Provides students who have an introductory background in statistics with an overview of secondary data analysis and enhances students' skills in using data analysis to test hypotheses.
Grading status: Letter grade.

EDUC 888. Introduction to Structural Modeling. 3 Credits.
Introduces structural equation modeling with both observed and latent variables. Applications include confirmatory factor analysis, multiple group analyses, longitudinal analyses, and multitrait-multimethod models.
Grading status: Letter grade.

EDUC 890. Special Topics in Education. 1-3 Credits.
This course provides students the opportunity for intensive exploration and discussion of selected topics in education.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 891. Educational Policy Doctoral Seminar. 3 Credits.
Provides for seminar treatment of appropriate topics related to education policy.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 892. Seminar in Educational Studies. 3-6 Credits.
Topics in educational philosophy to be determined by the students with the instructor. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

EDUC 902. Sociology of School Improvement. 3 Credits.
This course aims to develop a sociological understanding of the complex relationship between education and society.
Grading status: Letter grade.

EDUC 904. Exploring Representations of Education in Popular Culture. 3 Credits.
Students in this course explore and analyze how education has been represented in popular culture. Theoretical foundation of the course from seminars and readings.
Grading status: Letter grade.

EDUC 906. Education of African Americans. 3 Credits.
Students examine historical and contemporary aims for and assumptions underlying the public "education" of African Americans in the United States. Analysis of published histories, theories, qualtitative and quantitative research, encounters, events, and issues.
Grading status: Letter grade.

EDUC 909. Applied Quantitative Methods in Curriculum and Teacher Education. 3 Credits.
Applied statistics course designed to introduce students to how descriptive and inferential statistics are used in curriculum studies and teacher education. Students explore how statistical procedures are used in school, school district, state, and national settings.
Grading status: Letter grade.

EDUC 913. Language, Identity, and Power. 3 Credits.
Language is involved in the construction of social identity and power structures. Students examine how individuals construct their identities and language interacts with other social groupings (class, ethnicity, and gender) and examines how language creates and maintains power for certain groups. Special attention to marginalized groups in the United States.
Grading status: Letter grade.

EDUC 915. Introduction to Learning Sciences. 3 Credits.
Course is designed to provide an overview of the field of learning sciences. Goals of learning sciences are: 1) understand the physical, cognitive, and social aspects of learning environments and 2) use these understandings to design more effective learning environments.
Grading status: Letter grade.

EDUC 918. Introduction to Cognitive Science and Sociocultural Perspectives on Learning. 3 Credits.
Course provides an overview of learning theories in education with a special emphasis upon a sociocultural perspective. Course examines how learning theories are or can be enacted in research, policy, and practice.
Grading status: Letter grade.

EDUC 919. Design of Technology-Enhanced Learning Environments. 3 Credits.
This course provides a studio-based approach to the design of technology-enhanced learning environments for formal and informal education. Students will explore various forms of emerging technologies for education, engage in a design thinking process, and design prototypes to solve a specific learning problem.
Requisites: Prerequisite, EDUC 824 or equivalent.
Grading status: Letter grade.

EDUC 922. Mixed Methods Research. 3 Credits.
Explore foundations of mixed methods. Build familiarity with research designs and methods, learning how to integrate data from mixed methods designs. Learn to critique mixed methods research and designs. Provides preparation for proposing mixed methods projects.
Grading status: Letter grade.

EDUC 930. Economics of Education. 3 Credits.
Students consider and critically reflect upon the contributions of economic theory to educational policy issues. Course provides an overview of economic theories as they pertain to the provision of public education and an overview of econometrics. Focuses on salient topics in educational policy and their analysis through an economic lens.
Grading status: Letter grade.

EDUC 931. School Law and Public Policy. 3 Credits.
Course examines the judiciary's role in policy making, and its direct impact on school law and policy issues as they pertain to schools, stakeholders, and society.
Grading status: Letter grade.

EDUC 935. Multilevel Modeling. 3 Credits.
The primary goal for the course is to assist the students in investigating research problems in social sciences, particularly when data is meaningfully organized into multiple layers as a hierarchy, or contextual levels. Multilevel models (MLM) are also known as hierarchical linear models (HLM), random coefficient models, or random effects models. MLM can be used to analyze a variety of questions with either categorical or continuous dependent variables, and explained by many independent variables.
Requisites: Prerequisites, EDUC 710 and 784; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

EDUC 945. Intellectual Histories of Educational Thought. 3 Credits.
Course will explore ideas about children, families, knowledge, and the state that resonate through European and U.S. histories, primarily, and, though changed, continue to be debated now.
Grading status: Letter grade.

EDUC 947. Diversity in Teacher Education. 3 Credits.
Focus on research in teacher education that addresses diversity issues, a particular focus on sociocultural and sociopolitical approaches. Course emphasizes the relationship between theory and practice by focusing on the teacher as an agent of change.
Grading status: Letter grade.

EDUC 948. Research in Teacher Education and Diversity. 3 Credits.
Course looks at research in teacher education that addresses diversity issues, with a particular focus on sociocultural and sociopolitical approaches. Course will emphasize the relationship between theory and practice by focusing on the teacher as an agent of change in addressing issues of equity and social justice in diverse classrooms.
Grading status: Letter grade.

EDUC 949. Institutional Logics of Curriculum and Teaching. 3 Credits.
Learn about institutional theory and management and issues, policies and practices that describe, define, complicate, and confine those whose work focuses on curriculum and teaching.
Grading status: Letter grade.

EDUC 950A. Advanced Curriculum in the Humanities. 3 Credits.
Course brings together those with interests in academic disciplines of literature, history, foreign languages and literatures, English as a second language, and the arts to examine the status of the humanities in our society and in our P-12 schools. Students will consider socio-cultural and political contexts and contributions to the humanities.
Grading status: Letter grade.

EDUC 953. Research and Policy in Teacher Education. 3 Credits.
Study different approaches taken to studying teacher education and the implications of that work on policy, tracing the trajectory from research to policy.
Grading status: Letter grade.

EDUC 970. Applied Theory and Research: Dissertation Proposal Prep. 3 Credits.
Course explores planning and conducting qualitative research. Students will apply knowledge of qualitative research to dissertation proposal/projects. They will also explore different research proposals and data collection strategies.
Grading status: Letter grade.

EDUC 972. Critical Race Theory: History, Research, and Practice. 3 Credits.
Course will explore the historical development of Critical Race Theory (CRT) from its origins in Critical Legal Studies through the more recent frameworks established in education, including intersections with LatCrit Theory, AsianCrit, QueerCrit, TribalCrit, and Critical Race Feminism.
Grading status: Letter grade.

EDUC 973. Schooling Experiences of Men of Color. 3 Credits.
Focus, through a critical lens, will be on African American and Latino men, also covers experiences of Asian American and Native American males. Study of research that addresses issues of identity, masculinities, system barriers, cultural capital, and peer group dynamics.
Grading status: Letter grade.

EDUC 974. Critical Social Theory Explored Through Media. 3 Credits.
Course explores critical social theories through popular culture texts. Course challenges the perception that popular culture texts have little to offer in the way of educational discourse.
Grading status: Letter grade.

EDUC 977. Autoethnography Educational Research. 3 Credits.
Course will focus on the theory and practice of autoethnography, or "reading" significant patterns in everyday experience and connecting those patterns to the self and to broader social concerns. Students will read models of autoethnography, methodological works, do writing exercises, and create independent autoethnographic projects.
Grading status: Letter grade.

EDUC 990. Supervised Research. 1-3 Credits.
Open to graduate students only. Provides students with the opportunity to work with individual faculty members in collaborative research activities in association with a seminar during the second, third, and fourth semesters of study. May be repeated for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EDUC 992. Master's (Non-Thesis). 3 Credits.
Focuses on the development of a master's project or a major paper other than a thesis.
Repeat rules: May be repeated for credit.

EDUC 993. Master's Research and Thesis. 3 Credits.

EDUC 994. Doctoral Research and Dissertation. 3 Credits.

EDMX

Graduate-level Courses

EDMX 704. Literacy Reflection. 3 Credits.
Focuses on reflective literacy teaching: problematizing, processes of understanding students' thinking about reading and writing.
Grading status: Letter grade.

EDMX 706. Assessment and Accountability. 3 Credits.
Provides students with the opportunity to review, renew, and expand their understanding of assessment and program evaluation procedures, as well as the role of accountability in educational settings.
Grading status: Letter grade.

EDMX 707. Reinventing Teaching. 3 Credits.
Admission to the M.Ed. for experienced teachers program required. Addresses contexts of teaching, teaching in the world, and teaching students in schools. This course is designed for experienced educators to "reinvent teachers and teaching.
Grading status: Letter grade.

EDMX 708. Teacher Researcher I. 1-3 Credits.
Enrollment in the M.Ed. for Experienced Teachers program required. Explores the meanings of research and the potential roles of teachers in conducting research. Teachers formulate possible individual or small group research projects that they can carry out during the year.
Grading status: Letter grade.

EDMX 709. Teacher Researcher II. 3 Credits.
Teachers will plan and conduct advanced inquiry/research projects informed by their knowledge of teacher-research and their experience as teacher-researchers garnered through their successful completion of EDMX 708.
Grading status: Letter grade.

EDMX 710. Teacher Leadership for a Democratic Society. 3 Credits.
Focuses on the nature of change and teachers' roles as leaders within a changing environment. Several themes are addressed: shaping school cultures, schools as communities, schools as sites for reform, and politics and schools.
Grading status: Letter grade.

EDMX 715. Assessment and Differentiation. 1 Credit.
Enrollment in the M.Ed. for experienced teachers program required. Enhances teachers' understanding of how to differentiate assessment.
Requisites: Prerequisite, EDMX 707.
Grading status: Letter grade.

EDMX 716. Assessment and Differentiation. 3 Credits.
Enrollment in the M.Ed. for experienced teachers program required. Enhances teachers' understanding of how to differentiate instruction. Using a case-based approach, teachers examine the areas of human development, special education and inclusion, cultural diversity, linguistic diversity, cognitive styles, and multiple intelligences as frames through which to consider creative environments to promote students' classroom success.
Grading status: Letter grade.

EDMX 721. Content-Area Reading and Writing. 3 Credits.
Focuses on current theory, research, and issues in the teaching and use of reading and writing in the content areas. This is an introductory course.
Grading status: Letter grade.

EDMX 722. Advanced Reflective Literacy Teaching. 3 Credits.
Teachers will learn how to problematize assessment of students' thinking about reading and writing in this practicum course.
Grading status: Letter grade.

EDMX 723. Number Systems and Operations: K-5 Mathematical Tasks. 3 Credits.
Course has major restrictions. Analysis and construction of effective mathematical tasks in teaching number systems and operations at the K-5 level; attention is also given to the expansion of content knowledge.
Grading status: Letter grade.

EDMX 724. Data Analysis and Measurement: K-5 Classroom Interactions. 3 Credits.
Course has major restrictions. Focuses on statistical literacy of elementary teachers and the teaching of data analysis and measurement to K-5 students; attention is also given to learning methods that facilitate appropriate classroom interactions.
Grading status: Letter grade.

EDMX 725. Rational Numbers and Operations: K-5 Learning Trajectories. 3 Credits.
Course has major restrictions. Focuses on rational number concepts through learning trajectories at the K-5 level. Attention also given to problem solving and content knowledge.
Requisites: Prerequisite, EDMX 723.
Grading status: Letter grade.

EDMX 726. Revisiting Real Numbers Concepts. 3 Credits.
Uses a problem-based format and group work to explore the mathematics of the real numbers with an emphasis on rational numbers.
Grading status: Letter grade.

EDMX 727. Algebraic Reasoning: K-5 Discourse and Questioning. 3 Credits.
Course has major restrictions. Focus on the early algebra concepts of functional thinking and generalized arithmetic in relationship to pedagogical practices centered on questioning in the mathematics classroom.
Requisites: Prerequisite, EDMX 723.
Grading status: Letter grade.

EDMX 728. Topics in Mathematics Education: Geometry. 1-3 Credits.
Provides students with a mathematical foundation and cognitive support for elementary and middle school geometry. Specific goals address structure of elementary and middle school geometry.
Grading status: Letter grade.

EDMX 730. Geometry and Spatial Visualization: K-5 Assessment. 3 Credits.
Course has major restrictions. Geometric concept development along with formative and summative assessment strategies of students' geometric thinking. Attention also is given to geometric content knowledge and diagnosis of student errors.
Grading status: Letter grade.

EDMX 731. Writing in the 21st Century. 3 Credits.
Focuses on the writing process and the theoretical foundations necessary to become practitioners who can develop and implement effective writing instruction using 21st-century skills.
Grading status: Letter grade.

EDMX 732. Explorations in Literacy. 3 Credits.
Explores what it means to be a reader and writer, the nature of development of literacy.
Grading status: Letter grade.

EDMX 733. Spanish for Educators. 3 Credits.
This graduate-level course is an introductory immersion-style Spanish course for anyone involved in education. Learners will acquire novice-level proficiency in Spanish and an awareness of Hispanic culture.
Grading status: Letter grade.

EDMX 734. Revisiting Literacy. 3 Credits.
Explores literacy topics as capstone course for master's or licensure program in literacy.
Grading status: Letter grade.

EDMX 735. Math and Content Area Methods: Special Education, General Curriculum. 3 Credits.
Students will learn characteristics of students with mild to moderate learning disabilities in math, social studies, and science. They will also learn assessment techniques and instructional methods to address these specific characteristics.
Grading status: Letter grade.

EDMX 736. Mathematical Modeling: K-5 Leadership. 3 Credits.
Restricted to majors. Generating mathematical representations and making explicit connections between concepts. Pedagogy designed to equip elementary teachers to become mathematics teacher-leaders in school settings. Focuses on topics integrated within mathematical strands.
Requisites: Prerequisites, EDMX 723, 724, 725, 727, and 730.
Grading status: Letter grade.

EDMX 757. Social Studies Pedagogy A. 1-9 Credits.
Designed to extend students' professional content knowledge by exploring the content and methods of a social science discipline.
Grading status: Letter grade.

EDMX 758. Social Studies Pedagogy B. 3 Credits.
Designed to extend students' professional content knowledge by exploring the content and methods of a social science discipline.
Grading status: Letter grade.

EDMX 759. Contemporary Research for Social Studies Teaching. 3 Credits.
Focuses on current research topics and methodologies in the field of social studies education and examines their implications on the field.
Grading status: Letter grade.

EDMX 760. Integrated Learning. 3 Credits.
Builds on earlier coursework and will include teachers from each of the two concentrations in the M.Ed. for Experienced Teachers. It focuses on exploring what is meant by integrated curriculum and understanding the process of developmental research as it relates to the design and use of curricula.
Grading status: Letter grade.

EDMX 761. Social Studies/Humanities. 1-9 Credits.
Aims to develop social studies teachers' understanding of social science and humanities through an interdisciplinary inquiry process.
Grading status: Letter grade.

EDMX 762. Advanced Emergent and Early Literacy. 3 Credits.
Advanced course on emergent and early literacy, focusing on the research and theory in the development of reading and writing processes from birth through first grade, emphasizing the cognitive and socio-cultural perspectives.
Grading status: Letter grade.

EDMX 763. Diversity Global Education. 1-9 Credits.
Provides a linked perspective on international studies and multicultural education. Students explore issues relevant to these two topics as they relate to teaching and learning in social studies.
Grading status: Letter grade.

EDMX 764. Families and Teams in Early Childhood Intervention: Interdisciplinary Perspectives. 3 Credits.
Open to graduate students only. Explores issues and models of family-professional and interprofessional relationships in early childhood settings. Collaborative communication and problem-solving strategies are emphasized in the context of diversity.
Grading status: Letter grade.

EDMX 765. Early Childhood Assessment Strategies. 3 Credits.
Open to graduate students only. Provides an overview and application of strategies for developmental screenings, normative evaluations, curriculum, and play-based assessments for young children ages birth through five.
Grading status: Letter grade.

EDMX 766. Preschool/Kindergarten Curriculum and Learning Environments. 3 Credits.
Open to graduate students only. Focuses on individually, developmentally, and culturally appropriate learning environment and curriculum strategies for young children with and without disabilities ages three to five.
Grading status: Letter grade.

EDMX 767. Infant/Toddler Curriculum and Learning Environment. 3 Credits.
Focuses on infant/toddler development and mental health strategies for facilitating development in the home and in child care.
Grading status: Letter grade.

EDMX 768. Professional Development and Leadership in Early Childhood Intervention. 3 Credits.
Focuses on leadership skills in mentoring, supervision, staff development, resource gathering, and applied research related to early childhood settings.
Requisites: Prerequisites, EDMX 764, 765, and 766.
Grading status: Letter grade.

EDMX 775. Seminar in Science Education. 3 Credits.
Teaches students curriculum and instruction strategies in science education. The focus of the course is on teaching and assessing science for conceptual understanding.
Grading status: Letter grade.

EDMX 776. Perspectives on Science Education: Physical Science. 3 Credits.
Examines physical science domains in depth. Students reflect on their own understandings of science phenomena and research their students' understandings.
Grading status: Letter grade.

EDMX 777. Perspectives on Science Education: Life Science. 3 Credits.
Studies the history of science education, curriculum design, and national reform ideas as well as projects and programs currently used in United States classrooms.
Grading status: Letter grade.

EDMX 778. Perspectives of Science Education: Earth, Space, and Environmental Science. 3 Credits.
Explores current reforms in science education through an examination of critical topics in earth-space science.
Grading status: Letter grade.

EDMX 779. Big Ideas in Science Education. 3 Credits.
Through investigations, research, and guest speakers, this course engages students in discussions about teaching science in conjunction with issues of technology and society.
Grading status: Letter grade.

EDMX 782. Behavioral Support Techniques. 3 Credits.
Emphasizes effective behavior management and applied behavior analysis techniques for intervening in the environments of exceptional children to increase learning.
Grading status: Letter grade.

EDMX 789. Designing Problem Tasks for Mathematics. 1-3 Credits.
Focuses on the analysis and construction of mathematics instructional activities.
Grading status: Letter grade.

EDMX 792. Problem-Based Learning in Mathematics. 1-3 Credits.
Focuses on the analysis and construction of mathematics instructional activities: tasks, problems, and materials with which students and teachers engage.
Grading status: Letter grade.

EDMX 794. Developing Mathematical Knowledge. 3 Credits.
Designed to help teachers think through the major mathematical ideas of the curriculum and to examine how students develop these ideas.
Grading status: Letter grade.

EDMX 810. Culturally Responsive Teaching. 2 Credits.
This course initiates thoughtful discussion of race and culture in our schools by exploring history, identity, and issues in academic achievement.
Grading status: Letter grade.

DEPARTMENT OF ENGLISH AND COMPARATIVE LITERATURE (GRAD)

Contact Information

Department of English and Comparative Literature
Visit Program Website (http://englishcomplit.unc.edu)

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The English and comparative literature program offers a course of study leading to a doctor of philosophy degree, with potential specializations in a range of areas. We encourage our graduate students to discover a particular field, learn its histories, and define its problems. Through coursework, independent reading, and research, and with the support of an academic advisor, students develop a major field of study, as well as a focus of interest that often takes shape within or adjacent to the major field of study. See Programs for more information on these areas of study.

Admissions Requirements

Application for admission must be made by The Graduate School's electronic application process. These also serve as applications for fellowships and assistantships if the applicant marks the appropriate statement on the form.

Applicants for advanced degrees must have completed an undergraduate degree, customarily with a major in English, comparative literature, a foreign literature, area studies, or related field, at the time of enrollment. To be reviewed for admission by the department's graduate advisory committee, applications must be supported by Graduate Record Examination (GRE) scores, at least three letters of recommendation, and official transcripts showing courses, grades, and degrees awarded. A writing sample and a personal statement also should be submitted. Those students applying to the Ph.D. program who wish to focus on comparative literature should also submit (by mail on a CD or by email as an mp3 or mp4 file) a five- to seven-minute recorded sample of the student reading a selection of text in his or her second language beyond English. This recorded sample should be sent to the attention of the director of graduate admissions.

Students who have already completed an M.A. degree in English, comparative literature, a foreign language literature, or comparative literature at another institution may petition the relevant director of graduate studies for a reduction of up to nine credits (three courses) from their UNC–Chapel Hill requirements. More information about the department can be obtained via its Web site (http://englishcomplit.unc.edu).

Fellowships and Assistantships

Financial support for graduate students is described in the Admissions and Financial Information section of the Graduate Catalog. All applicants to the Department of English and Comparative Literature are eligible to compete for University fellowships and assistantships. In addition, the department awards two types of assistantships—research assistantships and teaching fellowships. Neither is usually available in the summer. Research assistants are assigned to faculty members to help with research projects. Teaching fellows have full instructional responsibility for sections of beginning composition or, in the case of some comparative literature students, foreign language courses. Graduate students in the third year of the English Ph.D. program who also have taught at least four sections of composition become eligible for teaching literature courses. Non-native speakers are not considered for teaching fellowships until they have been enrolled in the Ph.D. program for at least a year. Teaching fellows earn an annual stipend; they are trained and supervised by the directors of composition and undergraduate studies, and they are subject to student and faculty evaluation.

Foreign Language Proficiency

If a student wishes to focus on comparative literature, the department requires new Ph.D. students to arrive with fluency in a foreign or classical language and at least a beginning level of a second, and to attain to a proficiency in a second language before advancing to candidacy. The program encourages study and research abroad, as well as summer language study to increase foreign language proficiency. Graduating Ph.D. students are expected to achieve a level of expertise in a foreign language that would enable them to teach in a foreign language department, as well as in a comparative literature or English department.

The English program also considers a reading knowledge of foreign languages essential to the educational and professional aims of its degree programs. Ph.D. candidates in the English program must demonstrate proficiency in two languages. The department recommends Latin, French, German, Italian, or Spanish. The use of other languages to fulfill the requirement must be approved by the director of graduate studies. An undergraduate major in an approved language automatically satisfies the requirement. Ordinarily, however, students fulfill the requirements by passing an examination administered through the University; by completing reading courses for graduate students offered by the classics, German, and Romance languages departments; or, while enrolled as graduate students, by completing with a grade of at least B an undergraduate literature course in a foreign language. One foreign language requirement must be satisfied before the completion of English Ph.D. exams; the second requirement must be satisfied before the student schedules the Ph.D. defense. ENGL 814, History of the English Language, may be used to fulfill one of the two foreign language requirements for English Ph.D. candidates.

Library and Research Facilities

The library system at the University of North Carolina at Chapel Hill is ranked among the top 20 research libraries in the United States. It has excellent holdings for the study of English philology and British and American literature, including the Southern Historical Collection (containing manuscripts, letters, and diaries) and the Hanes Collection of Incunabula. Through cooperative arrangements, university libraries in the Triangle area are open to graduate students from the University of North Carolina at Chapel Hill.

The Department of English and Comparative Literature offers an M.A. in literature, medicine, and culture, and a Ph.D. in English and comparative literature.

Ph.D. in English and Comparative Literature

The English and comparative literature program offers a course of study leading to a doctor of philosophy degree, with potential specializations in a range of areas. We encourage our graduate students to discover a particular field, learn its histories, and define its problems. Through coursework, independent reading, and research, and with the support of an academic advisor, students develop a major field of study, as well as a focus of interest that often takes shape within or adjacent to the major field of study. The student's organization of the field and focus should to be rigorous enough to situate the student within a discipline, tradition, or area, and supple enough to accommodate his or her specific interests, questions, and predilections. Subject to the approval of the academic advisor and the director of graduate studies, the field and focus will form the basis of the Ph.D. examination (written exams on each field and an oral exam on both thereafter). One's focus can be defined in many different ways. It can be characterized in terms of a genre, such as drama, lyric, the novel, film, literary criticism, or theory; or in terms of a particular period. For doctoral students focusing on English literature, suggested fields include:

- Medieval literature
- Renaissance literature
- 18th-Century British literature
- Romanticism
- Victorian literature
- 19th-Century American literature
- 20th-Century American literature
- Critical theory
- Digital humanities
- Medicine and literature
- Multi-ethnic American literature
- Cultural studies
- Rhetoric and composition
- Film studies, among many others

A partial list of well-recognized foci for both English and comparative literature includes

- Philosophy and literature
- History of science/medicine/technology/psychology
- Visual culture/art history (including photography, et al.)
- Cinema/film studies
- Sexuality studies/gender studies/queer theory
- Anthropology and literature
- Religion and literature
- Politics and/or social thought
- Theater/spectacle/performance theory
- Poetics/literary criticism
- Literary and/or cultural theory

For those concentrating on comparative literature, the focus will always cross linguistic boundaries from the student's primary into the secondary language(s) and will complement the broader, more diachronic coverage in the primary geo-cultural tradition.

Comparative literature at UNC–Chapel Hill boasts particularly strong resources in medieval and early modern literature, comparative romanticisms, visual culture and global cinema, and Romance language studies. Comparative literature draws together a number of core faculty and many more affiliated faculty from across the University and strives to balance a belief in the value of a shared critical language with the exigencies of working in particular national languages, locations, literatures, and media. The comparative literature field maps out a general field of study within a primary geo-cultural literary tradition and over a broad chronological period. The phrase "geo-cultural literary tradition" is intended to describe what in some cases might be called a national literature tradition, but clearly not in all cases. Students may choose from, but are not limited to, such fields as

- African and/or African Diaspora literatures
- American literatures–either United States or North American and/or Central American and/or South American
- Caribbean literatures (in French, English, Spanish, and other languages)
- Classical literatures
- East Asian literatures
- English/Irish/Scottish/Welsh/"British" literatures
- French and/or Francophone literatures
- Germanic literatures
- Italian literature
- Latin American literatures (Spanish or Spanish/Portuguese)
- Middle Eastern/Arabic/Islamic literatures
- Postcolonial literatures–New World (Canadian/Caribbean), or South Asian, or Pacific Rim, etc.
- Russian and/or Slavic literatures
- South Asian literatures
- Spanish/Iberian literatures

Examples of periods would include

- Classical (Greek, Roman, Late Antiquity/Early Christian)
- Medieval (or premodern Islam/Asian studies)
- Renaissance/Early Modern (usually up to 1700 in Northern Europe)
- Neoclassical/18th Century/Enlightenment/"Age of Empire"
- Early Transatlantic/Colonial Americas (roughly 1450–1750, or a portion thereof)
- Enlightenment/Romanticism (roughly 1750–1840)
- Nineteenth Century
- Modernism (late 19th and early-to-mid 20th Century)
- Contemporary (1945 to the present)

For the doctor of philosophy degree in English and comparative literature, students must fulfill the following course requirements: a pedagogy course, an introduction to graduate study, and a theory course. (For the comparative literature focus, the theory course is CMPL 841.) They will also participate in a third year colloquium. In addition to coursework, a candidate for the Ph.D. must pass two written examinations and an oral defense of the examinations administered by the department, for which the student prepares by working closely with a faculty committee a year in advance. Doctoral candidates focusing on English literature must also demonstrate a reading knowledge of two foreign languages, though ENGL 814, History of the English Language, may be substituted for one of these foreign language requirements. Doctoral candidates focusing on comparative literature must demonstrate expert-level proficiency in two foreign languages (one of which must be demonstrated at the time of application). The program culminates with the candidate writing

a dissertation (and registering for at least three semester hours of ENGL 994) and successfully defending it in an oral examination. Students must also satisfy residence credit requirements set by The Graduate School. The department strongly recommends that candidates for the Ph.D. have supervised classroom teaching experience before receiving the degree. Such experience, when it can be offered, is considered as fulfilling a requirement for the degree.

M.A. in English with a Concentration in Literature, Medicine, and Culture

The M.A. in English's concentration in literature, medicine, and culture (http://hhive.unc.edu/litmedcult) works closely with the Department of Anthropology (http://anthropology.unc.edu/graduate-program) and the Department of Social Medicine (http://www.med.unc.edu/socialmed). Students enrolled in the concentration are expected to participate in interdisciplinary coursework and research projects with faculty from across the University. Faculty in the literature, medicine, and culture concentration come from over a dozen departments across the University, as well as the Honors Program (http://honorscarolina.unc.edu/current-students/curriculum/interdisciplinary-minor-in-medicine-literature-and-culture), which also offers an interdisciplinary undergraduate minor in the field. Among the many distinctions of the University of North Carolina at Chapel Hill is its School of Medicine (http://www.med.unc.edu), ranked second in primary care by U.S. News & World Report. With its hospital and allied schools of Nursing (http://nursing.unc.edu) and Social Work (http://ssw.unc.edu), the school stands only a few minutes' walk from the College of Arts and Sciences, where over a dozen departments rank among the top 25 nationally in their fields. Students benefit from close proximity between top-ranked programs in the healthcare and the liberal arts.

Doctor of Philosophy Degree with a Concentration in Renaissance Studies

Students working on their doctorate in one of the regular departmental programs may, with the approval of their departmental director of graduate studies, submit for the degree an interdisciplinary concentration in Renaissance studies. The program is based in the comparative literature program and administered by the Arts and Sciences Committee for Renaissance Studies. The concentration requires a minimum of five courses. Of those five, one must be CMPL 892, Seminar in Renaissance Studies. The remaining four courses must represent equally two fields other than the major field (e.g., a student with a major in Italian could offer from the approved list two courses in French, two in Latin, and CMPL 892).

CMPL 892, Seminar in Renaissance Studies, serves as a nucleus for the concentration, affording students the opportunity to bring together seemingly divergent strains in an interdisciplinary context. Customarily, the faculty member giving the course invites other members of the Renaissance faculty to participate in the discussions and to present related materials from their own field of inquiry. Student participants choose a related topic or area for research and all report regularly on their own projects under investigation. The course is cross-listed as appropriate under departmental offerings.

The concentration in Renaissance studies for the Ph.D. is examined orally at the departmental oral examination (not the defense), unless a written examination is required by departmental policy; ordinarily, faculty members with whom the candidate has taken courses serve as examiners.

A working knowledge of Latin is strongly recommended for students in the program.

English Faculty

Professors

Daniel R. Anderson, Rhetoric, Composition, and Literacy
Christopher M. Armitage, Renaissance, Poetry
David Baker, Renaissance, Drama, Renaissance Studies
A. Reid Barbour, Renaissance, Renaissance Studies
James W. Coleman, American, African American, 20th-Century American, Southern
María DeGuzmán, Latino/Latina Studies, 20th-Century American, Critical Theory
Florence Dore, 20th-Century American, Southern Literature, Post-1945 Literature
Pam Durban, Creative Writing
Mary Floyd-Wilson, Renaissance, Drama, Renaissance Studies
Marianne Gingher, Creative Writing
Philip Gura, American, American Studies
Jennifer Ho, Asian American, Contemporary American, Cultural Studies
Jordynn Jack, Rhetoric and Composition
Randall Kenan, Creative Writing
Laurie Langbauer, 19th-Century British, Critical Theory
Michael A. McFee, Creative Writing
John P. McGowan, Critical Theory, 19th-Century British, Comparative Literature, Cultural Studies, Novel, Women's Studies
Jeanne Moskal, 19th-Century British, Critical Theory, Women's Studies
Patrick P. O'Neill, Medieval, English Language, Celtic, Medieval Studies
Eliza Richards, American Literature

Alan R. Shapiro, 20th-Century American, Creative Writing
Bland Simpson, Creative Writing
Beverly W. Taylor, 19th-Century British, Novel, Women's Studies
Todd W. Taylor, Rhetoric, Composition and Literacy
James P. Thompson, 18th-Century British, Critical Theory, Novel
Joseph S. Viscomi, 19th-Century British
Daniel Wallace, Creative Writing
Jessica Wolfe, Renaissance, Renaissance Studies

Associate Professors

Inger S.B. Brodey, 18th- and 19th-Century British Novel, Comparative Literature, Philosophy
Gabrielle Calvocaressi, Creative Writing, Poetry
Pamela Cooper, 20th-Century British, Cultural Studies, Novel, Women's Studies
Tyler Curtain, Critical Theory, Cultural Studies, Novel
Rebecka Rutledge Fisher, African American, American, Black Intellectual Thought, Critical Theory
Gregory Flaxman, Film Studies, 20th-Century British, Critical Theory, Cultural Studies
Stephanie Griest, Creative Writing, Creative Nonfiction
Laura Halperin, Latino/Latina Studies, 20th-Century American, Cultural Studies
Meta Jones, African American Literature, 20th Century American Literature, Poetry
Heidi Kim, 20th-Century American, Asian American Literature
Shayne Legassie, Medieval, Medieval Studies, Comparative Literature

Theodore H. Leinbaugh, Medieval, Medieval Studies, Comparative Literature
Thomas Reinert, 18th-Century British, Novel, Poetry
Matthew Taylor, American Literature, Cultural Studies, Theory and Criticism
Jane Thrailkill, American, 20th-Century American
Rick Warner, Film, Global Cinema Studies

Assistant Professors

Danielle Christmas, African American Literature, 20th-Century American
Taylor Cowdery, Late Medieval Literature, Early Modern Poetry, Medieval Studies
Helen Cushman, Late Medieval Literature, Medieval Studies
Candace Epps-Robertson, Rhetoric and Composition
Martin Johnson, Film Studies
Kim Stern, 19th-Century British

Professors Emeriti

William L. Andrews
Laurence G. Avery
Alan C. Dessen
Jane M. Danielewicz
Connie Eble
Joseph Flora
Joy Kasson
Johnny Lee Greene
Minrose Gwin
William Harmon
Trudier Harris
Howard M. Harper Jr.
Mae Henderson
Fred Hobson
Ritchie D. Kendall
Edward Donald Kennedy
J. Kimball King
George S. Lensing Jr.
Allan R. Life
Erika C. Lindemann
C. Townsend Ludington Jr.
Megan Matchinske
Margaret A. O'Connor
Daniel W. Patterson
Julius R. Raper III
Richard D. Rust
Ruth Salvaggio
James Seay
Thomas A. Stumpf
Weldon E. Thornton
Linda Wagner-Martin
David Whisnant
Joseph S. Wittig
Charles G. Zug III

Comparative Literature Faculty

Professors

Marsha S. Collins, Modern Peninsular Literature, Golden Age Spanish Literature
Eric S. Downing, 18th- and 19th-Century Literature, Literary Theory, Classics
Clayton Koelb, Modern Literature, Literary Theory, Philosophy and Aesthetics, Comparative Literature
John P. McGowan, Critical Theory, Cultural Studies, Novel, Women's Studies
Jessica Wolfe, Comparative Renaissance Literature, Classical Reception

Associate Professors

Inger S.B. Brodey, Prose Fiction in Late 18th- and Early 19th-Century Europe and Meiji Japan
Gregory Flaxman, Film Studies, Critical Theory
Shayne Legassie, Medieval, Medieval Studies, Comparative Literature
Rick Warner, Global Cinema Studies

Adjunct and Affiliate Professors (all ranks)

María DeGuzmán, Professor, Department of English and Comparative Literature, Latino/Latina Studies, 20th-Century American, Critical Theory
Rebecka Rutledge Fisher, Associate Professor, Department of English and Comparative Literature, American Literature, African American Literature, Caribbean Literature, Theory and Criticism, Cultural Studies, American Studies
Sharon James, Associate Professor, Department of Classics
Janice H. Koelb, Adjunct Assistant Professor, Department of English and Comparative Literature, British Romanticism, Poetry and Poetics
Hassan Melehy, Associate Professor, Department of Romance Studies, French
Inga Pollman, Assistant Professor, Department of Germanic Languages and Literatures, German, Cinema Studies
William Race, Professor, Department of Classics
Eliza Richards, Associate Professor, Department of English and Comparative Literature
Alicia Rivero, Associate Professor, Department of Romance Studies, Contemporary Spanish American Literature, Modern Critical Theory, Gender Issues, Literature and Science, Intellectual History
Yaron Shemer, Associate Professor, Department of Asian Studies, Israeli and Middle Eastern Cinema
Michael Silk, Professor, King's College London, Classics
Robin Visser, Associate Professor, Department of Asian Studies, Chinese Literature and Culture

Professors Emeriti

Dino Cervigni
Edward D. Kennedy
George A. Kennedy
Diane Leonard
James Peacock
Philip A. Stadter

ENGL

Advanced Undergraduate and Graduate-level Courses

ENGL 400. Advanced Composition for Teachers. 3 Credits.
This course combines frequent writing practice with discussions of rhetorical theories and strategies for teaching writing. The course examines ways to design effective writing courses, assignments, and instructional materials.
Grading status: Letter grade.

ENGL 402. Investigations in Academic Writing and Writing Centers. 3 Credits.
This course considers learning to write from three vantage points: personal, social, and contextual. Emphasis on theory, reflective practice, and pedagogy for peer tutoring.
Gen Ed: CI.
Grading status: Letter grade.

ENGL 403. Rhetoric and Social Justice. 3 Credits.
How do communities resist oppression through writing? This course examines texts and methods related to the study of social movements. Students will work with archival materials at Wilson Library to research social justice movements at UNC and in the South. Previously offered as ENGL 316. Honors version available
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

ENGL 403H. Rhetoric and Social Justice. 3 Credits.
How do communities resist oppression through writing? This course examines texts and methods related to the study of social movements. Students will work with archival materials at Wilson Library to research social justice movements at UNC and in the South. Previously offered as ENGL 316.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

ENGL 404. Advanced Creative Nonfiction. 3 Credits.
In addition to surveying key works of creative nonfiction throughout the ages - from Montaigne in the 16th century to Solnit, Rankine, and Urrea in the 21st - we will be composing (and peer-reviewing) our own explorations of every subgenre, including memoir, literary journalism, travel writing, flash nonfiction, and the lyric essay, with an eye toward publication.
Requisites: Prerequisites, ENGL 138 and 208; permission of the instructor or director for students lacking the prerequisites.
Grading status: Letter grade.

ENGL 406. Advanced Fiction Writing. 3 Credits.
Permission of the program director. A continuation of the intermediate workshop with emphasis on the short story and novella. Extensive discussion of student work and revisions in class and in conferences with instructor.
Requisites: Prerequisite, ENGL 206.
Gen Ed: LA, CI.
Grading status: Letter grade.

ENGL 407. Advanced Poetry Writing. 3 Credits.
Permission of the program director. A continuation of the intermediate workshop, with increased writing and revising of poems. Extensive discussion of student poetry in class and in conferences with instructor.
Requisites: Prerequisite, ENGL 207.
Gen Ed: LA, CI.
Grading status: Letter grade.

ENGL 408. Collaboration: Composers and Lyricists. 3 Credits.
This is a course in popular-songwriting collaboration, a workshop with constant presentation of original songs and close-critiquing of these assignments. Varied assignments including songs for soloists, duos, trios, quartets, and chorus; ballads, folk, jazz, blues, art, and musical-theater songs, etc.
Gen Ed: VP, CI.
Grading status: Letter grade.

ENGL 409. Lyrics and Lyricists: A Collaborative Exploration of the Processes of Popular-Song Lyric Writing. 3 Credits.
This course is a collaborative exploration of popular-song lyric writing, requiring numerous drafts written to varied existing musical models--narrative ballads; hymns; folk, theater, jazz, art, R&B, R&R, and worldbeat songs, etc--to be tried out and worked on in class, as well as in conference.
Gen Ed: VP, CI.
Grading status: Letter grade.

ENGL 410. Documentary Film. 3 Credits.
This course provides a history of documentary cinema since the beginnings of the medium and surveys different modes and theoretical definitions; or the course may focus largely on a certain mode (such as ethnographic, observational, first-person, cinema vérité, politically activist, found footage compilation, or journalistic investigation). Honors version available
Gen Ed: VP.
Grading status: Letter grade.

ENGL 410H. Documentary Film. 3 Credits.
This course provides a history of documentary cinema since the beginnings of the medium and surveys different modes and theoretical definitions; or the course may focus largely on a certain mode (such as ethnographic, observational, first-person, cinema vérité, politically activist, found footage compilation, or journalistic investigation).
Gen Ed: VP.
Grading status: Letter grade.

ENGL 430. Renaissance Literature--Contemporary Issues. 3 Credits.
This course examines Renaissance literature through the lens of cultural themes, issues, and problems that were important to Renaissance authors and readers. Texts may be drawn from, among others, the English, French, German, Italian, and Spanish literary traditions, and may range in date from the 15th to the 17th centuries.
Gen Ed: LA, NA, WB.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 437. Chief British Romantic Writers. 3 Credits.
Survey of works by Blake, Wordsworth, Coleridge, Byron, Percy and Mary Shelley, Keats, and others. Honors version available
Gen Ed: LA, NA.
Grading status: Letter grade.

ENGL 437H. Chief British Romantic Writers. 3 Credits.
Survey of works by Blake, Wordsworth, Coleridge, Byron, Percy and Mary Shelley, Keats, and others.
Gen Ed: LA, NA.
Grading status: Letter grade.

ENGL 443. American Literature before 1860--Contemporary Issues. 3 Credits.
A junior- or senior-level course devoted to in-depth exploration of an author, group of authors, or topic in American literature to 1860. Honors version available
Gen Ed: LA, NA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 443H. American Literature before 1860--Contemporary Issues. 3 Credits.
A junior- or senior-level course devoted to in-depth exploration of an author, group of authors, or topic in American literature to 1860.
Gen Ed: LA, NA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 444. American Literature, 1860-1900--Contemporary Issues. 3 Credits.
Intensive study of one or more authors or a topic in American literature from the Civil War through 1900. Honors version available
Gen Ed: LA, NA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 444H. American Literature, 1860-1900--Contemporary Issues. 3 Credits.
Intensive study of one or more authors or a topic in American literature from the Civil War through 1900.
Gen Ed: LA, NA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 445. American Literature, 1900-2000--Contemporary Issues. 3 Credits.
A junior- or senior-level course devoted to in-depth exploration of an author, group of authors, or a topic in American literature from 1900 to 2000. Honors version available
Gen Ed: LA, NA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 445H. American Literature, 1900-2000--Contemporary Issues. 3 Credits.
A junior- or senior-level course devoted to in-depth exploration of an author, group of authors, or a topic in American literature from 1900 to 2000.
Gen Ed: LA, NA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 446. American Women Authors. 3 Credits.
American women authors from the beginnings to the present. Honors version available
Gen Ed: LA, NA.
Grading status: Letter grade
Same as: WGST 446.

ENGL 446H. American Women Authors. 3 Credits.
American women authors from the beginnings to the present.
Gen Ed: LA, NA.
Grading status: Letter grade
Same as: WGST 446H.

ENGL 447. Memory and Literature. 3 Credits.
This course brings together theories of collective and individual memory with questions of aesthetics and narrative while exploring global connections between memory and literature.
Gen Ed: LA.
Grading status: Letter grade.

ENGL 448. Philosophies of Life from Classical Antiquity to 1800. 3 Credits.
This course examines philosophies of life, its nature and origins, from the ancient Greeks to the enlightenment.
Gen Ed: PH, CI, WB.
Grading status: Letter grade.

ENGL 462. Contemporary Poetry and Theory. 3 Credits.
This course introduces the student to historical and contemporary thinking about poetry and poetic language. Examines the place of poetry in theoretical thinking and theoretical thinking about poetry. Honors version available
Gen Ed: LA.
Grading status: Letter grade.

ENGL 462H. Contemporary Poetry & Theory. 3 Credits.
This course introduces the student to historical and contemporary thinking about poetry and poetic language. Examines the place of poetry in theoretical thinking and theoretical thinking about poetry.
Gen Ed: LA.
Grading status: Letter grade.

ENGL 466. Literary Theory--Contemporary Issues. 3 Credits.
Examines current issues in literary theory such as the question of authorship, the relation of literary texts to cultural beliefs and values, and to the formation of identities. Honors version available
Gen Ed: LA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 466H. Literary Theory--Contemporary Issues. 3 Credits.
Examines current issues in literary theory such as the question of authorship, the relation of literary texts to cultural beliefs and values, and to the formation of identities.
Gen Ed: LA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 467. Educating Latinas/os: Preparing SLI Mentors. 3 Credits.
Permission of the instructor. Designed for students accepted as mentors to the Scholars' Latino Initiative (SLI). Students will take this course during their first year as SLI mentors to prepare them as effective mentors to Latina/o high school students. Students cannot receive credit for both ENGL 267 and 467.
Gen Ed: LA, CI, EE- Service Learning.
Grading status: Letter grade.

ENGL 472. African American Literature--Contemporary Issues. 3 Credits.
Study of particular aspects of African American literature, such as the work of a major writer or group of writers, an important theme, a key tradition, or a literary period. Honors version available
Gen Ed: LA, NA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 472H. African American Literature--Contemporary Issues. 3 Credits.
Study of particular aspects of African American literature, such as the work of a major writer or group of writers, an important theme, a key tradition, or a literary period.
Gen Ed: LA, NA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 473. The Changing Coasts of Carolina. 3 Credits.
A rigorous combination of field work, lab work, and colorful, original contemporary writing on the natural world will help tell the story of our many, evolving North Carolina coasts. Combining marine science and the creative literary arts, this immersive course will explore issues of change over many eras. This combination of social, cultural, and scientific observation will lead to imaginatively constructed, well-written non-fiction reportage about one of North America's most productive, compelling, and challenging regions.
Gen Ed: CI, EE- Field Work.
Grading status: Letter grade
Same as: MASC 473.

ENGL 475. Southern Literature--Contemporary Issues. 3 Credits.
The study of a particular topic or genre in the literature of the United States South, more focused than students will find in ENGL 373.
Gen Ed: LA, NA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 480. Digital Humanities History and Methods. 3 Credits.
Students will explore the history of computer-assisted humanities scholarship, from its beginnings in computational linguistics, media studies, and humanities computing to its current incarnation as "digital humanities." The course will provide an introduction to the field and to digital research methodologies and prepare students to develop their own digital projects. Previously offered as ENGL 530.
Gen Ed: LA, CI.
Grading status: Letter grade.

ENGL 482. Metadata, Mark-up, and Mapping: Understanding the Rhetoric of Digital Humanities. 3 Credits.
This Course-based Undergraduate Research Experience (CURE) course interrogates the rhetoric of data construction and management by positioning students as "critical makers" in a digital humanities project. Previously offered as ENGL 353.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

ENGL 487. Everyday Stories: Personal Narrative and Legend. 3 Credits.
Oral storytelling may seem old-fashioned, but we tell true (or possibly true) stories every day. We will study personal narratives (about our own experiences) and legends (about improbable, intriguing events), exploring the techniques and structures that make them effective communication tools and the influence of different contexts and audiences.
Gen Ed: CI, US.
Grading status: Letter grade
Same as: FOLK 487.

ENGL 488. Critical Security Studies. 3 Credits.
Introduces major topics in the interdisciplinary field of critical security studies. Critically analyzing the public construction of risk and security in military, technological, informational, and environmental domains, the course explores major theories that attempt to make sense of the transnational proliferation of violence and risk in historical and contemporary contexts.
Gen Ed: CI, GL.
Grading status: Letter grade
Same as: PWAD 484.

ENGL 489. Science, Medicine, and Cultural Studies--Contemporary Issues. 3 Credits.
The student will have an opportunity to concentrate on researching topics and texts central to the study of health, medicine, culture, and ethics. Central topics may include representations of genetics, cloning, reproduction, and biotechnology. Honors version available
Gen Ed: LA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 489H. Science, Medicine, and Cultural Studies--Contemporary Issues. 3 Credits.
The student will have an opportunity to concentrate on researching topics and texts central to the study of health, medicine, culture, and ethics. Central topics may include representations of genetics, cloning, reproduction, and biotechnology.
Gen Ed: LA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 490. Creative Writing: Special Topics. 3 Credits.
Permission of the program director. An occasional advanced course, which may focus on such topics as advanced creative nonfiction, editing and publishing, the lyric in song and collaboration between lyricists and composers, the one-act play, and short-short fiction.
Gen Ed: LA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 494. Research Methods in Film Studies. 3 Credits.
This course introduces students to research methods in film studies. While this course will provide a broad survey of methods one might employ in film studies research of all kinds, the course may be restricted to a particular research topic.
Gen Ed: CI, EE- Mentored Research.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 496. Independent Research. 1-3 Credits.
Permission of the department. Recommended for students in junior or senior year of study. Intensive mentored research, service learning, field work, creative work, or internship. Requires 30 hours of research, writing, or experiential activities, or 100 hours of internship work, culminating in a written project.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

ENGL 564. Interdisciplinary Approaches to Literature. 3 Credits.
Examines the ways knowledge from other disciplines can be brought to bear in the analysis of literary works. Questions of disciplinary limits and histories will also be addressed.
Gen Ed: LA.
Grading status: Letter grade.

ENGL 583. Drama on Location. 3 Credits.
Offered as part of summer study abroad programs in Oxford, London, and Stratford-on-Avon. Students experience plays in performance and as texts, and discuss their literary, dramatic, cultural, and historical aspects. Honors version available
Gen Ed: VP, EE- Study Abroad.
Grading status: Letter grade.

ENGL 583H. Drama on Location. 3 Credits.
Offered as part of summer study abroad programs in Oxford, London, and Stratford-on-Avon. Students experience plays in performance and as texts, and discuss their literary, dramatic, cultural, and historical aspects.
Gen Ed: VP, EE- Study Abroad.
Grading status: Letter grade.

ENGL 610. Science as Literature: Rhetorics of Science and Medicine. 3 Credits.
The goal of this course is to develop skills in analyzing the rhetorical construction of scientific claims, with a focus on health and medicine as scientific discourse communities. Topics include the structure, argument, and style of scientific genres; visual and digital rhetorics; and the circulation of scientific rhetoric among publics.
Gen Ed: CI.
Grading status: Letter grade.

ENGL 611. Narrative, Literature, and Medicine: Advanced Interdisciplinary Seminar. 3 Credits.
Sociologist Arthur Frank asserts that "whether ill people want to tell stories or not, illness calls for stories." This seminar explores narrative approaches to suffering, healing, and medicine's roles in these processes. Students learn literary and anthropological approaches to examine medically themed works from a range of genres.
Gen Ed: PH, CI, US.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 619. Survey of Old and Middle English Literature. 3 Credits.
An introduction to English literature from the eighth to the 15th century, focusing on the primary works of Old English and Middle English literature.
Gen Ed: LA, NA, WB.
Grading status: Letter grade.

ENGL 620. Introduction to Old English Language and Literature. 3 Credits.
Students will learn to read Old English, the Germanic language spoken by the Anglo-Saxons in Britain from about the middle of the fifth century until the time of the Norman Conquest. Students will study Beowulf, "Caedmon's Hymn", and other selections in poetry and prose.
Gen Ed: LA, WB.
Grading status: Letter grade.

ENGL 621. Arthurian Romance. 3 Credits.
British and continental Arthurian literature in translation from the early Middle Ages to Sir Thomas Malory.
Gen Ed: LA, NA, WB.
Grading status: Letter grade
Same as: CMPL 621.

ENGL 630. Shakespeare and His Contemporaries. 3 Credits.
This course will examine drama written and performed in England from 1570 to 1640, situating Shakespeare's plays in relation to others in his generation.
Gen Ed: LA, NA, WB.
Grading status: Letter grade.

ENGL 638. 19th-Century Women Writers. 3 Credits.
An investigation of important texts by 19th-century women writers that considers issues of gender in relation to other important considerations--tradition, form, culture--with an introduction to the chief scholarly and critical problems of this period.
Gen Ed: LA, CI, NA.
Grading status: Letter grade.

ENGL 659. War in 20th-Century Literature. 3 Credits.
A study of literary works written in English concerning World War I, or the Spanish Civil War and World War II, or the Vietnam War. Honors version available
Gen Ed: LA, GL.
Grading status: Letter grade
Same as: PWAD 659.

ENGL 659H. War in 20th-Century Literature. 3 Credits.
A study of literary works written in English concerning World War I, or the Spanish Civil War and World War II, or the Vietnam War.
Gen Ed: LA, GL.
Grading status: Letter grade
Same as: PWAD 659H.

ENGL 660. War in Shakespeare's Plays. 3 Credits.
The focus is on Shakespeare's various treatments of war in his plays: all his Roman histories, most of his English histories, all his tragedies, even some of his comedies.
Grading status: Letter grade
Same as: PWAD 660.

ENGL 661. Introduction to Literary Theory. 3 Credits.
Examines contemporary theoretical issues and critical approaches relevant to the study of literature.
Grading status: Letter grade.

ENGL 662. History of Literary Criticism. 3 Credits.
A history of literary criticism from the Greeks to mid-20th century, focusing on recurrent concerns and classic texts that are indispensable for understanding the practice of literary criticism today.
Gen Ed: LA.
Grading status: Letter grade.

ENGL 665. Queer Latina/o Literature, Performance, and Visual Art. 3 Credits.
This course explores literature, performance art, film, and photography by Latinas and Latinos whose works may be described as "queer" and that question terms and norms of cultural dominance.
Gen Ed: VP, NA, US.
Grading status: Letter grade
Same as: WGST 665.

ENGL 666. Queer Latina/o Photography and Literature. 3 Credits.
This course explores Latina/o literature about photography in relation to photography by "queer" Latina/o artists and, through this double focus, poses certain questions about identity, subjectivity, and culture.
Gen Ed: VP, NA, US.
Grading status: Letter grade
Same as: WGST 666.

ENGL 670. Being and Race in African American Literature. 3 Credits.
An examination of phenomenology, the "philosophy of experience." Taking the perspective that literature helps clarify our experience, we will engage in readings of various genres--poetry, autobiography, fiction, and drama--as we examine how literature not only records experience, but also shapes it through a distinct method of reasoning.
Gen Ed: LA, US.
Grading status: Letter grade.

ENGL 674. Digital Literature. 3 Credits.
Digital literature explores how literary works are composed for, shaped by, and studied in electronic environments. Course texts range from books to electronic fiction and poetry to video games. Hands-on activities give students a chance to develop their own literary projects–either as electronic literary works or as digital scholarship.
Gen Ed: LA, CI.
Grading status: Letter grade.

ENGL 675. Digital Teaching. 3 Credits.
This course explores issues and methodologies related to the integration of digital technologies into teaching. Topics include instructor-student dynamics in the technology-assisted classroom, the role of social media in education, emerging forms of digital composing, and opportunities for extending the classroom through online platforms.
Gen Ed: LA, CI.
Grading status: Letter grade.

ENGL 676. Digital Editing and Curation. 3 Credits.
Students will investigate theories and practices of editing in multimedia, digital environments. Students will explore histories of textual editing, research major humanities projects, examine trends and toolsets related to developing scholarly digital materials, and collaborate with one another and with campus entities to develop an online digital humanities project.
Gen Ed: LA, CI.
Grading status: Letter grade.

ENGL 680. Film Theory. 3 Credits.
This course provides a rigorous introduction to various theories (aesthetic, narrative, historical, political, psychological, philosophical) inspired by cinema.
Gen Ed: VP, CI.
Grading status: Letter grade.

ENGL 681. Topics in Contemporary Film and Media. 3 Credits.
This course examines aesthetic and social aspects of contemporary cinema, television, and/or other media. Previously offered as ENGL 580. Honors version available
Gen Ed: VP.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 681H. Topics in Contemporary Film and Media. 3 Credits.
This course examines aesthetic and social aspects of contemporary cinema, television, and/or other media. Previously offered as ENGL 580.
Gen Ed: VP.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 685. Literature of the Americas. 3 Credits.
Multidisciplinary examination of texts and other media of the Americas, in English and Spanish, from a variety of genres. Two years of college-level Spanish or the equivalent strongly recommended.
Gen Ed: LA, NA.
Grading status: Letter grade
Same as: AMST 685, CMPL 685.

ENGL 690. Special Topics. 3 Credits.
Selected topics in literary studies, composition, digital media, and related fields. Topic varies by semester.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

ENGL 691H. English Senior Honors Thesis, Part I. 3 Credits.
Restricted to senior honors candidates. First semester of senior honors thesis. Independent research under the direction of an English department faculty member.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ENGL 692H. English Senior Honors Thesis, Part II. 3 Credits.
Restricted to senior honors candidates. Second semester of senior honors thesis. Essay preparation under the direction of an English department faculty member.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ENGL 693H. Creative Writing Senior Honors Thesis, Part I. 3 Credits.
Restricted to senior honors candidates. The first half of a two-semester seminar. Each student begins a book of fiction or creative nonfiction (25,000 words) or poetry (1,000 lines). Extensive discussion of student work in class and in conferences.
Requisites: Prerequisites, ENGL 130, 131, 132H, 133H, or 138; and ENGL 206, 207, or 208; and ENGL 404, 406, 407.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ENGL 694H. Creative Writing Senior Honors Thesis, Part II. 3 Credits.
Restricted to senior honors candidates. The second half of a two-semester seminar. Each student completes a book of fiction, creative nonfiction, or poetry. Extensive discussion of student work in class and in conferences with instructor.
Requisites: Prerequisite, ENGL 693H.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ENGL 695. Research Seminar. 3 Credits.
Guides students through the processes of developing an original research topic, conducting research, and analyzing research, leading students to produce a high-quality presentation of their findings. Topic varies by instructor but may focus on literary studies or closely-related arenas such as medical humanities, digital humanities, and creative writing, among others.
Gen Ed: LA, CI, EE- Mentored Research.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

Graduate-level Courses

ENGL 701. Introduction to Medieval Studies. 3 Credits.
Introduction to medieval studies for graduate students in any department. Intended to expose students to research problems, tools, and techniques in fields other than their own.
Grading status: Letter grade.

ENGL 706. Rhetorical Theory and Practice. 3 Credits.
A study of rhetorical theories and practices from classical to modern times. Emphasis is on translation of theories into instructional practice for teaching in the college writing classroom.
Grading status: Letter grade.

ENGL 709. Technologies of Literary Production. 3 Credits.
This course introduces the history of technologies used to produce and circulate literature, from medieval Europe to the twenty-first-century. Proceeding chronologically, this history provides a broad overview of the material conditions of possibility for the emergence of literary form and genre in the Anglophone tradition.
Grading status: Letter grade.

ENGL 719. Old English Grammar and Readings. 3 Credits.
An introduction to Old English language and literature that also attempts to relate that language to Modern English and to the larger context of the history of the English language.
Grading status: Letter grade.

ENGL 720. Old English Poetry. 3 Credits.
Required preparation, a working knowledge of Old English. The translation and interpretation of Old English poetry including works such as The Wanderer, The Seafarer, Deor, The Dream of the Rood, and Beowulf.
Grading status: Letter grade.

ENGL 723. Later Middle English Literature. 3 Credits.
English literature of the late 14th and 15th centuries, including Gower, the English and Scottish Chaucerians, and Sir Thomas Malory.
Grading status: Letter grade.

ENGL 724. Chaucer. 3 Credits.
A study of Chaucer's major poetry, including Troilus and Criseyde, at least some of the 'dream' poems such as Parliament of Fowls, and most of The Canterbury Tales.
Grading status: Letter grade.

ENGL 747. Studies in the American Novel. 3 Credits.
A wide-ranging, graduate-level survey of the American novel from the late 18th century through the 20th century.
Grading status: Letter grade.

ENGL 748. Studies in American Poetry. 3 Credits.
A wide-ranging, graduate-level survey of American poetry from the late 18th century through the 20th century.
Grading status: Letter grade.

ENGL 762. Special Topics in Cultural Studies. 3 Credits.
An introduction to myriad texts, topics, controversies, institutions, and personalities that make up the ongoing knowledge projects that are loosely affiliated under the rubric "cultural studies.
Grading status: Letter grade.

ENGL 763. Introduction to Methods in Health Humanities. 3 Credits.
Permission of the Instructor. This course introduces students to topics and methods in health and humanities. Students will read classics in the field, engage texts from different disciplines and genres, and conduct intensive research into a condition or disability of their choosing.
Grading status: Letter grade.

ENGL 764. Medicine Without Borders. 3 Credits.
This course examines texts by medical professionals who practice in perilous venues, as well as their sponsoring institutions (Christian missions, the Red Cross, and Doctors Without Borders), investigating the texts' representational strategies and the historical and ethical settings of both texts and institutions.
Grading status: Letter grade.

ENGL 776. Old Irish I. 3 Credits.
The main emphasis of the course will be on mastering the basic grammar of the language. There will be some readings from selected Old Irish glosses and from Aislinge Oenguso.
Grading status: Letter grade.

ENGL 777. Old Irish II. 3 Credits.
Readings from a variety of genres of Old Irish literature: Stories from the Tain, Crith Gablach, Cambrai Homily, Early Irish Lyrics, Scela Mucce Meic Datho.
Requisites: Prerequisite, ENGL 776.
Grading status: Letter grade.

ENGL 781. Proseminar in British Literature, 1500-1660. 3 Credits.

ENGL 783. Proseminar in British Literature, 1770-1870. 3 Credits.

ENGL 784. Proseminar in American Literature, Prior to the Civil War. 3 Credits.

ENGL 785. Proseminar in Literature after 1870. 3 Credits.

ENGL 786. Introduction to Graduate Study in English and Comparative Literature. 3 Credits.
This course introduces students to the field of literary studies in English and comparative literature. Students will survey a range of approaches, methods, and controversies that have emerged from the field. The focus on critical and institutional histories will provide a foundation for graduate work and for developing professional objectives.
Grading status: Letter grade.

ENGL 801. Research Methods in Composition and Rhetoric. 3 Credits.
Course introduces graduate students to methodologies of research in the field of Rhetoric and Composition. Emphasis is on theoretical and practical concerns that improve teaching and help develop research agendas.
Grading status: Letter grade.

ENGL 805. Studies in Rhetoric and Composition. 3 Credits.
Focus varies by semester, but generally investigates intersections of literacy, pedagogy, and rhetorical theory. Courses range from explorations of technology and literacy, to investigations of forms of writing and pedagogy.
Grading status: Letter grade.

ENGL 814. History of the English Language. 3 Credits.
Study of English from its Proto-Indo-European origins through the 18th century focusing on historic events and the major changes to the structure and usage of English they occasioned.
Grading status: Letter grade
Same as: LING 814.

ENGL 819. Seminar in Old English Language and Literature. 3 Credits.
Topics in Old English poetry and prose that vary with each seminar and instructor.
Grading status: Letter grade.

ENGL 821. Seminar in Middle English Literature. 3 Credits.
Intensive study of major Middle English authors or genres or of medieval cultural influences. Topics have included Malory, Piers Plowman and its tradition, drama, and intellectual backgrounds of medieval literature.
Grading status: Letter grade.

ENGL 825. Renaissance Literature in Context. 3 Credits.
A study of select works of Renaissance literature, both dramatic and nondramatic, in its intellectual, social, political, or religious context.
Grading status: Letter grade.

ENGL 827. Studies in Renaissance Authors. 3 Credits.
Concentrated studies of single authors, groups of authors thematically linked, or authors in their families or coteries.
Grading status: Letter grade.

ENGL 828. Perspectives on Renaissance Literature and Culture. 3 Credits.
Students will study Renaissance literature while assessing the usefulness and status of a theoretical approach, such as feminist theory, queer theory, cultural materialism, new historicism, or psychoanalytic theory.
Grading status: Letter grade.

ENGL 829. Studies in Renaissance Literature: Drama. 3 Credits.
A study of Renaissance drama linked thematically, or framed by select cultural practices and historical issues.
Grading status: Letter grade.

ENGL 830. Studies in Renaissance Literature: Primarily Nondramatic. 3 Credits.
A focused examination of an aesthetic, historical, or theoretical problem in the study of Renaissance literature.
Grading status: Letter grade.

ENGL 831. Seminar in 18th-Century Literature. 3 Credits.
Selected topics in 18th-century literature.
Grading status: Letter grade.

ENGL 835. 18th-Century Fiction. 3 Credits.
Studies in eighteenth-century fiction from Behn to Austen.
Grading status: Letter grade.

ENGL 837. Studies in English Literature, 1780-1832. 3 Credits.
Sections: 1) Blake, Wordsworth, Coleridge, 2) Byron, Shelley, Keats. Examination of the major Romantic poets, supplemented by readings in other Romantic authors.
Grading status: Letter grade.

ENGL 838. 19th-Century British Novel. 3 Credits.
Examination of important 19th-century British novels, such as those by Austen, Scott, Dickens, the Brontes, sensation novelists, Gaskell, Carroll, Thackeray, Eliot, Trollope, Doyle, Hardy, Meredith.
Grading status: Letter grade.

ENGL 840. Studies in Victorian Literature: Poetry. 3 Credits.
Study of Victorian poets, focused on a group or a topic, including figures such as Tennyson, the Brownings, Arnold, and the Pre-Raphaelites.
Grading status: Letter grade.

ENGL 841. Seminar in 19th-Century Romanticism in England. 3 Credits.
Topics concerning major authors and issues of the Romantic period.
Grading status: Letter grade.

ENGL 842. Seminar in Victorian Literature. 3 Credits.
Topics concerning major authors and issues of the Victorian period.
Grading status: Letter grade.

ENGL 843. Seminar in American Literature to 1860. 3 Credits.
Topics vary: e.g., New England Puritanism, New England response to American literary nationalism; Emerson; Irving, Hawthorne, and Poe and the development of the American short story.
Grading status: Letter grade.

ENGL 844. Seminar in American Literature, 1860-1900. 3 Credits.
In-depth exploration for doctoral students of selected topics or authors in American Literature from 1860 to 1900.
Grading status: Letter grade.

ENGL 847. Seminar in the American Novel. 3 Credits.
Doctoral-level seminar in the selected topics or authors.
Grading status: Letter grade.

ENGL 850. Studies in English and American Poetry of the 20th Century. 3 Credits.
Usually taught as a survey of major poets: Yeats, Frost, Stevens, Williams, Pound, Eliot, Auden, with some more recent poets.
Grading status: Letter grade.

ENGL 852. Seminar in Modern Drama. 3 Credits.
Explores representative works of contemporary playwrights.
Grading status: Letter grade.

ENGL 857. Studies in 20th-Century English and American Literature. 3 Credits.
Studies in special modern and/or contemporary topics; e.g., the Irish literary renaissance, Latina/o Studies, Asian American Studies, cultural, visual culture, postcolonial, gender, and/or ethnic studies, and British and/or American Literature.
Grading status: Letter grade.

ENGL 858. Studies in English and American Fiction of the 20th Century. 3 Credits.
Usually taught as a survey of major writers: Joyce, Lawrence, Woolf, Hemingway, Faulkner, with some other writers.
Grading status: Letter grade.

ENGL 860. Seminar in 20th-Century Literature, English and American. 3 Credits.
Seminar examining issues in modern English and American Literature.
Grading status: Letter grade.

ENGL 861. Seminar in Literary and Cultural Theory. 3 Credits.
Seminar with varying topics, focusing on recent developments in literary and cultural theory, including narratology, feminism, psychoanalysis, and postcolonial and materialist theory.
Grading status: Letter grade.

ENGL 862. Seminar in Cultural Studies. 3 Credits.
Advanced exploration of myriad tests, topics, controversies, institutions, and personalities that make up the ongoing knowledge projects that are loosely affiliated under the rubric 'cultural studies.'
Grading status: Letter grade.

ENGL 863. Seminar in Postcolonial Literature. 3 Credits.
Course examines the shifting meanings of postcoloniality in 20th- and 21st- century literature from formerly colonized countries.
Grading status: Letter grade.

ENGL 864. Studies in Latina/o Literature, Culture, and Criticism. 3 Credits.
Representative work by Latina/o writers and critics in relation to major social and historical trends and critical models-border theory, biculturalism, mestizaje, tropicalization, diaspora, pan-latinidad, Afro-Latina/o disidentifications, and LatinAsia Studies.
Grading status: Letter grade.

ENGL 868. African American and African Diasporan Literature, 1930-1970. 3 Credits.
Key writers within the context of selected literary, cultural, and critical traditions from 1930 to 1970.
Grading status: Letter grade.

ENGL 871. Seminar in African American Literature. 3 Credits.
An intensive study of a major writer or text, a group of writers or texts, or an important trend, tradition, or literary period.
Grading status: Letter grade.

ENGL 872. Studies in African American and African Diasporan Literature. 3 Credits.
An intensive study of a particular aspect of African American literature, such as speculative fiction, subject formation, comparative diasporan literatures, gender issues, theoretical and critical approaches, or formal innovations.
Grading status: Letter grade.

ENGL 874. Literature of the U.S. South: Special Topics. 3 Credits.
An in-depth treatment of selected topics (e.g., the Southern Renaissance, postmodern southern fiction, the racial conversion narrative) in Southern literature.
Grading status: Letter grade.

ENGL 875. Critical Race Theory-Graduate Seminar. 3 Credits.
Seminar examines and engages with critical race theory and the various texts (narrative, cultural productions) that are in conversation with theories of race and that reflect representations of race.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENGL 876. Introduction to Modern Irish I. 3 Credits.
An introduction to modern Irish grammar.
Grading status: Letter grade.

ENGL 877. Introduction to Modern Irish II. 3 Credits.
Readings in Modern Irish Literature.
Requisites: Prerequisite, ENGL 876.
Grading status: Letter grade.

ENGL 880. Ireland in Modernity. 3 Credits.
This course will examine the relationships between Irish writing, culture, and modernism, in the context of international developments in literature and art.
Grading status: Letter grade.

ENGL 881. Studies in Cinema. 3 Credits.
This course offers graduate students the opportunity to investigate, in a seminar setting, a particular subject within the domain of film studies.
Grading status: Letter grade.

ENGL 886. Seminar in Ecological Theory and Practice. 3 Credits.
In-depth evaluation of ecological theory, ecocritical pedagogy, and literary criticism.
Grading status: Letter grade.

ENGL 990. Directed Readings. 3 Credits.
Topics vary according to the needs and interests of the individual student and the professor directing the reading and writing project.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

ENGL 992. Master's (Non-Thesis). 3 Credits.

ENGL 993. Master's Research and Thesis. 3 Credits.

ENGL 994. Doctoral Research and Dissertation. 3 Credits.

CMPL

Advanced Undergraduate and Graduate-level Courses

CMPL 411. Critical Theory. 3 Credits.
Overview of those realms of modern and contemporary thought and writing that are known as, and closely associated with, "critical theory.
Grading status: Letter grade.

CMPL 420. Film, Photography, and the Digital Image. 3 Credits.
This course examines the shifting nature of the cinematic medium in relation to both traditional photography and newer digital forms of image production. The aesthetic, ethical, and ontological aspects of cinema are explored in light of emergent technological and cultural conditions that demand a full-scale reconsideration of cinema's specificity.
Gen Ed: VP.
Grading status: Letter grade.

CMPL 435. Consciousness and Symbols. 3 Credits.
This course explores consciousness through symbols. Symbols from religion, art, politics, and self are studied in social, psychological, historical, and ecological context to ascertain meanings in experience and behavior.
Gen Ed: SS.
Grading status: Letter grade
Same as: ANTH 435, FOLK 435.

CMPL 442. Postcolonial Literature of the Middle East. 3 Credits.
This course introduces students to postcolonial literature and theory. The main focus in the course is on literary texts and literary analysis. However, we will use postcolonial theory to engage critically with the primary texts within a postcolonial framework. We will explore language, identity, physical and mental colonization, and decolonization.
Gen Ed: LA, CI, GL.
Grading status: Letter grade
Same as: ASIA 442.

CMPL 450. Major Works of 20th-Century Literary Theory. 3 Credits.
Comparative study of representative works on literary and cultural theory or applied criticism to be announced in advance.
Gen Ed: LA, NA.
Grading status: Letter grade.

CMPL 452. The Middle Ages. 3 Credits.
Study of select examples of Western medieval literature in translation, with particular attention paid to the development of different genres, subjects, styles, and themes. Texts may be drawn from, among others, the French, Spanish, German, English, and Italian literary traditions, and may range in date rom the eighth to the fifteenth centuries.
Gen Ed: LA, NA, WB.
Grading status: Letter grade.

CMPL 453. The Erotic Middle Ages. 3 Credits.
Readings of major works of medieval European literature in translation from the 12th to 15th centuries, focusing on topics such as courtship, marriage, adultery, homoeroticism, domestic violence, mystical visions, and prostitution.
Gen Ed: LA, NA, WB.
Grading status: Letter grade.

CMPL 454. Literature of the Continental Renaissance in Translation. 3 Credits.
Discussion of the major works of Petrarch, Boccaccio, Machiavelli, Castiglione, Ariosto, Tasso, Rabelais, Ronsard, Montaigne, Cervantes, and Erasmus. Honors version available
Gen Ed: NA, WB.
Grading status: Letter grade.

CMPL 454H. Literature of the Continental Renaissance in Translation. 3 Credits.
Discussion of the major works of Petrarch, Boccaccio, Machiavelli, Castiglione, Ariosto, Tasso, Rabelais, Ronsard, Montaigne, Cervantes, and Erasmus.
Gen Ed: NA, WB.
Grading status: Letter grade.

CMPL 456. The 18th-Century Novel. 3 Credits.
English, French, and German 18th-century narrative fiction with emphasis on epistolary novel. The relation of the novel to the Enlightenment and its counterpart, the cult of sentimentality, and on shifting paradigms for family education, gender, and erotic desire.
Gen Ed: LA, NA.
Grading status: Letter grade.

CMPL 458. Sense, Sensibility, Sensuality, 1740-1810. 3 Credits.
The development of the moral aesthetic of sensibility or Empfindsamkeit in literature of western Europe in the late 18th and early 19th centuries.
Gen Ed: LA, NA.
Grading status: Letter grade.

CMPL 460. Transnational Romanticism: Romantic Movements in Europe and the Americas. 3 Credits.
Research-intensive course that explores how the Romantic movement beginning in 18th-century Europe has shaped the world we experience now. Topics vary and include revolutionary republicanism; slavery and abolition; quests for originality, expressiveness, and spiritual renovation; critiques of progress and modern urban culture; and revaluations of the natural world.
Requisites: Prerequisite, ENGL 105.
Gen Ed: LA, CI, EE- Mentored Research.
Grading status: Letter grade.

CMPL 462. Realism. 3 Credits.
An exploration of the period concept of Realism through selected works by such writers as George Eliot, Dickens, James, Dostoevsky, Tolstoy, Balzac, Stendhal, Flaubert, Zola.
Gen Ed: LA, NA.
Grading status: Letter grade.

CMPL 463. Cinema and Surrealism. 3 Credits.
This course examines surrealism as an inter-art development between the First and Second World Wars. Taking a comparativist view, it focuses mainly on cinema but explores surrealist literature, painting, and sculpture as well. Much of the course traces the continuing relevance of surrealist practices in contemporary cinema.
Gen Ed: VP.
Grading status: Letter grade.

CMPL 464. Naturalism. 3 Credits.
The Naturalist movement in European and American literature of the late 19th and early 20th centuries, focusing on its philosophical, psychological, and literary manifestations in selected plays and novels.
Gen Ed: LA, NA.
Grading status: Letter grade.

CMPL 466. Modernism. 3 Credits.
An exploration of the period concept of modernism in European literature, with attention to central works in poetry, narrative, and drama, and including parallel developments in the visual arts.
Gen Ed: LA, NA.
Grading status: Letter grade.

CMPL 468. Aestheticism. 3 Credits.
Aestheticism as a discrete 19th-century movement and as a major facet of modernism in literature and literary theory. Authors include Kierkegaard, Baudelaire, Nietzche, Huysmans, Wilde, Mann, Rilke, Nabokov, Dinesen, Barthes, Sontag.
Gen Ed: LA, NA.
Grading status: Letter grade.

CMPL 469. Milan Kundera and World Literature. 3 Credits.
This course traces Milan Kundera's literary path from his communist poetic youth to his present postmodern Francophilia . His work will be compared with those authors he considers his predecessors and influences in European literature. Taught in English. Some readings in Czech for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: CZCH 469.

CMPL 470. Concepts and Perspectives of the Tragic. 3 Credits.
History and theory of tragedy as a distinctive literary genre and as a more general literary and cultural problem. Authors include Aeschylus, Sophocles, Euripides, Shakespeare, Racine, Goethe, Nietzsche, Wagner, Mann, Samuel I and II, Faulkner. Also engages theorists, ancient and modern.
Gen Ed: LA, NA, WB.
Grading status: Letter grade.

CMPL 471. Classical Rhetoric and Modern Theory. 3 Credits.
Explores how the theory and practice of classical, medieval, and early modern rhetoric continue to challenge and stimulate contemporary theory. Two-thirds of the course examines texts written before 1750.
Gen Ed: LA, NA, WB.
Grading status: Letter grade.

CMPL 472. The Drama from Ibsen to Beckett. 3 Credits.
The main currents of European drama from the end of the 19th century to the present. Includes Chekhov, Strindberg, Pirandello, Lorca, Brecht, Anouilh.
Gen Ed: LA, NA.
Grading status: Letter grade.

CMPL 473. Drama, Pageantry, and Spectacle in Medieval Europe. 3 Credits.
An introduction to many different forms of medieval drama and pageantry, including plays, tournaments, public executions, and religious processions. Plays, artwork, and texts from a range of Western European countries, ranging in date from the eighth to the 16th centuries, may be considered.
Gen Ed: LA, WB.
Grading status: Letter grade.

CMPL 477. Wicked Desire: Vladimir Nabokov, Lolita, on Page and Screen. 3 Credits.
Vladimir Nabokov's novel Lolita (1955) became a global phenomenon due to its unflinching portrayal of pedophilia. This course will delve deeper into the novel's moral complexity, its international context, and its reflection in mass culture, including movies by Stanley Kubrick (1962) and Adrian Lyne (1997). Taught in English; some readings in Russian for qualified students.
Gen Ed: LA, NA.
Grading status: Letter grade
Same as: RUSS 477.

CMPL 478. The Medieval Frame Tale: Chaucer, Boccaccio, and the Arabian Nights. 3 Credits.
A comparative study of Chaucer's Canterbury Tales, Boccaccio's Decameron, and the earliest known version of the Arabian Nights. Knowledge of Middle English desirable, but students with no experience in the language will be able to attend tutorial sessions early in the semester.
Gen Ed: LA, CI, WB.
Grading status: Letter grade.

CMPL 479. What is a Medium? German Media Theory from Aesthetics to Cultural Techniques. 3 Credits.
This seminar provides students across the humanities with an overview of the historical and cultural relevance of German media theories. We will discuss the distinction between "art" and "medium", the role of technology and techniques, as well as the interaction of media theory and practice with politics. Films with English subtitles; readings and discussions in English.
Gen Ed: VP, CI.
Grading status: Letter grade
Same as: GERM 479.

CMPL 481. Rhetoric of Silence: Cross-Cultural Theme and Technique. 3 Credits.
The uses of literary silence for purposes such as protest, civility, joy, oppression, nihilism, awe, or crisis of representation. Authors include Sterne, Goethe, Austen, Kawabata, Soseki, Oe, Toson, Camus, Mann.
Gen Ed: LA.
Grading status: Letter grade
Same as: ASIA 481.

CMPL 482. Philosophy and Literature. 3 Credits.
Philosophical readings of literary texts, including novels, plays, and poems.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: PHIL 482.

CMPL 483. Cross-Currents in East-West Literature. 3 Credits.
The study of the influence of Western texts upon Japanese authors and the influence of conceptions of "the East" upon Western writers. Goldsmith, Voltaire, Soseki, Sterne, Arishima, Ibsen, Yoshimoto, Ishiguro.
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: ASIA 483.

CMPL 485. Approaches to 20th-Century Narrative. 3 Credits.
An examination of central trends in 20th-century narrative.
Gen Ed: LA, NA.
Grading status: Letter grade.

CMPL 486. Literary Landscapes in Europe and Japan. 3 Credits.
Changing understandings of nature across time and cultures, especially with regard to its human manipulation and as portrayed in novels of Japan and Europe. Rousseau, Goethe, Austen, Abe, Mishima. Honors version available
Gen Ed: LA.
Grading status: Letter grade
Same as: ASIA 486.

CMPL 486H. Literary Landscapes in Europe and Japan. 3 Credits.
Changing understandings of nature across time and cultures, especially with regard to its human manipulation and as portrayed in novels of Japan and Europe. Rousseau, Goethe, Austen, Abe, Mishima.
Gen Ed: LA.
Grading status: Letter grade
Same as: ASIA 486H.

CMPL 487. Literature and the Arts of Love. 3 Credits.
Love and sexuality in literary works from various historical periods and genres. Authors include Sappho, Plato, Catullus, Propertius, Ovid, Dante, Petrarch, Shakespeare, LaClos, Goethe, Nabokov, and Roland Barthes.
Gen Ed: LA, NA, WB.
Grading status: Letter grade.

CMPL 489. Empire and Diplomacy. 3 Credits.
Examines the history of the British Empire and the role of peace, war, defense, diplomacy, and letters in shaping Britain's presence on the world stage.
Gen Ed: LA, GL.
Grading status: Letter grade
Same as: PWAD 489.

CMPL 490. Special Topics. 3 Credits.
Topics vary from semester to semester.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

CMPL 492. The Fourth Dimension: Art and the Fictions of Hyperspace. 3 Credits.
An exploration of the concept of the fourth dimension, its origins in non-Euclidean geometry, its development in popular culture, and its impact on the visual arts, film, and literature.
Gen Ed: LA, NA.
Grading status: Letter grade.

CMPL 494. The Essay Film: Adventures in Modern Cinema since 1945. 3 Credits.
Examines aesthetic, political, historical, and philosophical aspects of essay films in international cinema, focusing on examples by directors such as Chris Marker, Orson Welles, Harun Farocki, Agnes Varda, Errol Morris, and Jean-Luc Godard.
Gen Ed: VP.
Grading status: Letter grade.

CMPL 496. Reading Course. 3 Credits.
Readings vary from semester to semester. The course is generally offered for three credits.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

CMPL 500. Advanced Seminar. 3 Credits.
This seminar allows comparative literature majors to work on an independent project to synthesize their curricular experience, and it introduces them to current, broadly applicable issues in comparative literature.
Gen Ed: LA, CI, EE- Mentored Research.
Grading status: Letter grade.

CMPL 527. Cold War Culture in East Asia: Transnational and Intermedial Connections. 3 Credits.
This course introduces students to the specific contours that the Cold War accrued in East Asia. Focusing on literature and film, it explores what the fall of the Japanese Empire and the emergence of the post-1945 world meant across the region.
Gen Ed: LA, BN, CI.
Grading status: Letter grade
Same as: ASIA 427, PWAD 427.

CMPL 535. The Cinemas of the Middle East and North Africa. 3 Credits.
This course explores the social, cultural, political, and economic contexts in which films are made and exhibited and focuses on shared intra-regional cinematic trends pertaining to discourse, aesthetics, and production.
Gen Ed: VP, BN, GL.
Grading status: Letter grade
Same as: ASIA 435, PWAD 435.

CMPL 547. Documenting Diasporas: Korean Diasporas in Films and Documentaries. 3 Credits.
In this course, we will explore the multiple, shifting, and often contested diasporic subjectivities represented and produced in Korean diaspora cinemas; these subjectivities encompass various Korean diaspora communities in Asia, Central Asia, Europe, and the Americas.
Gen Ed: VP, GL.
Grading status: Letter grade
Same as: KOR 447.

CMPL 558. The Lives and Times of Medieval Corpses. 3 Credits.
An investigation of the social, political, and literary uses of corpses in the Middle Ages.
Gen Ed: LA, EE- Mentored Research, WB.
Grading status: Letter grade.

CMPL 560. Reading Other Cultures: Issues in Literary Translation. 3 Credits.
Permission of the instructor. Reading knowledge of a language other than English recommended. Starting from the proposition that cultural literacy would be impossible without reliance on translations, this course addresses fundamental issues in the practice, art, and politics of literary translation. Previously offered as SLAV 560.
Grading status: Letter grade
Same as: GSLL 560.

CMPL 563. Studies in the Anglo-French Renaissance. 3 Credits.
Recommended preparation, FREN 370 (for students taking the course for French credit), or one course from ENGL 225 to ENGL 229, or one course from CMPL 120 to CMPL 124. Study of French-English literary relations in the Renaissance, focusing on literary adaptation and appropriation, poetics, political writing, and related areas. Conducted in English; students may do written work in French for major or minor credit.
Gen Ed: LA, WB.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: FREN 563.

CMPL 621. Arthurian Romance. 3 Credits.
British and continental Arthurian literature in translation from the early Middle Ages to Sir Thomas Malory.
Gen Ed: LA, NA, WB.
Grading status: Letter grade
Same as: ENGL 621.

CMPL 622. Medieval Cosmopolitanisms. 3 Credits.
An examination of medieval engagements with the foreign and the extent to which those engagements challenged conventional ways of thinking about the world.
Gen Ed: EE- Mentored Research, WB.
Grading status: Letter grade.

CMPL 624. The Baroque. 3 Credits.
Required preparation, one course from CMPL 120-129. Analysis of the Baroque as an aesthetic movement, including major, representative literary works, comparisons of literature and the visual arts, and the study of theories of the Baroque and Neo-Baroque. Authors studied may include Tasso, Racine, Cervantes, and Shakespeare, among others.
Gen Ed: LA, NA, WB.
Grading status: Letter grade.

CMPL 685. Literature of the Americas. 3 Credits.
Multidisciplinary examination of texts and other media of the Americas, in English and Spanish, from a variety of genres. Two years of college-level Spanish or the equivalent strongly recommended.
Gen Ed: LA, NA.
Grading status: Letter grade
Same as: ENGL 685, AMST 685.

CMPL 691H. Comparative Lit Senior Honors Thesis Part I. 3 Credits.
Required of all students reading for honors in comparative literature.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

CMPL 692H. Comparative Lit Senior Honors Thesis Part II. 3 Credits.
Required of all students reading for honors in comparative literature.
Requisites: Prerequisite, CMPL 691H.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

CMPL 700. Problems and Methods in Comparative Literature. 3 Credits.
The course deals with the history of comparative literature, bibliographical materials, orientations of the subject in Europe and America, and problems of methodology, periodization, literary movements, and concepts of literary theory.
Grading status: Letter grade.

CMPL 737. Topics in Contemporary Literary and Cultural Theory. 3 Credits.
Selected critical topics in poststructuralist thought, chosen by the instructor and announced in advance.
Grading status: Letter grade.

CMPL 741. The Essay and Short Story. 3 Credits.
Theory and practice of the essay and short story. Topics include masters of the Spanish American and international essay and short story, the evolution of both genres, gender, cultural studies.
Grading status: Letter grade
Same as: SPAN 741.

CMPL 745. The Vanguards. 3 Credits.
The theory and practice of innovative writing, especially since the 19th century. Topics include the historical Spanish American and Anglo-European vanguards, experimental literature, modernismo's literary rebellion, gender, and cultural studies.
Grading status: Letter grade
Same as: SPAN 745.

CMPL 747. The Contemporary Spanish American Novel. 3 Credits.
The theory and practice of the novel since the 1960s. Topics include the Spanish American "Boom" of the 60s and 70s, major international trends and writers, gender, cultural studies.
Grading status: Letter grade
Same as: SPAN 747.

CMPL 796. Reading Course. 1-21 Credits.

CMPL 821. Reading Ironies. 3 Credits.
Study of processes of recognizing and constructing ironies in texts, with consideration of both theoretical issues and practical readings.
Grading status: Letter grade.

CMPL 841. History of Literary Criticism I: The Origins of Theory and Criticism. 3 Credits.
Traces major strains in literary criticism and theory from classical antiquity to the 18th century, pairing primary critical texts with contemporary literary examples and modern day theoretical responses. Authors read include: Plato, Aristotle, Aristophanes, Horace, Augustine, and Burke; Homer, Ovid, Virgil, Dante, and Pope; and Auerbach, Derrida, Ricoeur, and Benjamin.
Grading status: Letter grade.

CMPL 842. History of Literary Criticism II: 1750-1950. 3 Credits.
Study of major theoretical and critical writings in Europe from the middle of the 18th to the early 20th century.
Grading status: Letter grade.

CMPL 843. 20th-Century Literary Theory. 3 Credits.
An overview of major theoretical developments of the 20th century, including such movements as Saussurean linguistics, Russian Formalism, Prague Circle Semiotics, poststructuralism, phenomenology, psychoanalysis, feminism, and Marxism.
Grading status: Letter grade.

CMPL 844. Modern Women Writers. 3 Credits.
Exploration of 'l'ecriture feminine' through texts of modern women writers, artists, and critics who expanded the frontiers of expression beyond the conventionally articulable into spaces of silence and the 'non-dit.'
Grading status: Letter grade.

CMPL 890. Special Topics in Comparative Literature. 3 Credits.

CMPL 892. Interdisciplinary Seminar in Renaissance Studies. 3 Credits.
Topic announced annually in advance.
Grading status: Letter grade.

CMPL 894. Seminar. 3 Credits.
Topic announced annually in advance.
Grading status: Letter grade.

CMPL 900. Research. 0.5-21 Credits.

CMPL 992. Master's (Non-Thesis). 3 Credits.

CMPL 993. Master's Research and Thesis. 3 Credits.

CMPL 994. Doctoral Research and Dissertation. 3 Credits.

CURRICULUM FOR THE ENVIRONMENT AND ECOLOGY (GRAD)

Contact Information

Curriculum for the Environment and Ecology
Visit Program Website (http://www.cee.unc.edu)

Jaye E. Cable, Chair

Andrew J. Yates, Director of Graduate Studies and Graduate Admissions

The Environment, Ecology, and Energy Program (E3P) is a multidisciplinary, degree-granting program that seeks to foster an understanding and appreciation of ecological systems and to demonstrate the value of ecological approaches to the solution of current and future environmental problems. With the participation of faculty and students from many disciplines and departments, emphasis is placed on interdisciplinary activities that explicitly consider the complexity of the environment and integrated approaches to problem identification and solution. In particular, it seeks to foster an understanding and appreciation of ecological systems, human and nonhuman, and to demonstrate the value of ecological approaches to the solution of current and future environmental problems.

Current faculty come from the departments of anthropology, biology, biostatistics, city and regional planning, communication, economics, environmental sciences and engineering, geography, geological sciences, marine sciences, public policy, and sociology. Whereas degree programs with a strong ecology component may be arranged in other departments, by combining many approaches and methods and by linking the social and natural sciences the curriculum explicitly considers the complexity of the environment and the need for integrated approaches to problem identification and solution. Using the resources of many departments, E3P provides both broad and specialized training in ecology, human ecology, and the study of environmental systems. Graduate degrees available in the program are the master of science, the master of arts, and the doctor of philosophy. Applications will be accepted from persons with varied backgrounds and goals, with the specific program of study and research tailored to the needs of the individual.

Requirements for Admission

For admission to E3P, an undergraduate degree is required in a natural science such as physics, chemistry, biology, bacteriology, botany, zoology, or geology; a social science such as anthropology, sociology, or economics; a mathematical area such as statistics, mathematics, or systems analysis; an engineering area; or environmental science. The deadline for a completed application in order for students to be considered for fall admission is in January. However, students must submit all program and Graduate School admission materials by December if they wish to be considered for campus fellowships and other forms of graduate appointments. Late applications will cause students to miss out on some opportunities. Detailed information is available on both the curriculum's Web site (http://www.cee.unc.edu) and The Graduate School's admissions Web site (http://gradschool.unc.edu/admissions).

Every student must gain an understanding of the breadth and depth of the field of ecology as it is treated among various traditional disciplines. This is accomplished in two ways: first, through the ENEC 567 and ENEC 569 course sequence; and second, through the composition of the student's advisory committee. Students are required to do their best to establish state residency in their first year and must apply for state residency after their first year in order to be considered for tuition remission in subsequent years.

Doctor of Philosophy

Each ecology Ph.D. student, in addition to taking ENEC 567 and ENEC 569, must register for ENEC 994 at least once for three hours credit. There are no other course requirements for the Ph.D. except for those designated by the student's graduate advisory committee and as long as the student meets the credit hour requirements of The UNC Graduate School.

Owing to the diversity of research methods and approaches within the field of ecology, the curriculum has no explicit research skill course requirements for graduate degrees. The student's graduate advisory committee is responsible for seeing that the student has gained the proficiencies expected of a degree candidate in the student's selected area of expertise.

Master's Degrees

Two ecology master's degrees are offered by the program: the master of science degree requiring independent research and a thesis, and the master of arts degree requiring a thesis question and literature research review. All master's degrees are terminal degrees at UNC–Chapel Hill. Master's students must request readmission for Ph.D. work following completion of all requirements for the master's degree.

Master of Science

The master of science course requirements are determined by the student's advisory committee. They must include a minimum of 30 hours of graduate credit (of which no less than 24 hours must be earned in courses, and at least three hours in research), and completion of the thesis. One semester of registration is required in ENEC 567 and ENEC 569, and M.S. students must register for three hours of ENEC 993.

Master of Arts

Requirements for the master of arts are the same as those for the master of science, except a master of arts paper is prepared (ENEC 992) in place of a master's thesis (ENEC 993).

Adjunct Professors

Carol Arnosti, Carbon Cycling in the Ocean, Organic Marine Geochemistry
Larry K. Benninger, Low-Temperature Geochemistry
Richard E. Bilsborrow, Economic Demography, Population, Development and the Environment
John F. Bruno, Ecology and Conservation of Marine Communities
Jaye Cable, Marine Sciences, Chemical Oceanography
Michael Emch, Medical Geography, Epidemiology
Barbara Entwisle, Social Demography, Population and Environment
Patricia Gensel, Paleobotany, Patterns of Evolutionary Change
Joel G. Kingsolver, Environmental Physiology, Functional Morphology, Population Ecology and Evolution
Paul W. Leslie, Human Ecology, Population Biology
Christopher S. Martens, Biogeochemistry
Charles Mitchell, Disease Ecology, Global Change, Biological Invasions
Rachel Noble, Environmental Microbiology, Marine Microbial Ecology

Hans Paerl, Microbial Ecology, Estuarine and Coastal Ecology, Water Quality Dynamics
Robert K. Peet, Plant Community and Population Ecology, Biogeography, Ecoinformatics
Charles H. Peterson, Marine Ecology, Population and Community Processes
David W. Pfennig, Evolutionary Ecology
Karin S. Pfennig, Behavioral Ecology and Evolution, Speciation, Host-Parasite Interactions
Michael F. Piehler, Coastal Ecosystems and Human Health, Tracking Pathogens in Water
Maria Servedio, Evolutionary Ecology, Behavioral Ecology
Donna Surge, Paleoclimatology, Paleoecology, Low-Temperature Geochemistry
Conghe Song, Remote Sensing of Vegetation, Ecological Modeling, Geographic Information Systems
Jill Stewart, Linkages between Ecosystems and Human Health, Tracking Pathogens in Water
Andreas P. Teske, Microbial Ecology, Evolution and Systematics
Stephen J. Walsh, Land Use and Land Cover Dynamics, Spatial Modeling and Analysis
Jason West, Climate and Air Quality Modeling
Peter S. White, Plant Population and Community Ecology, Conservation Biology
Andrew J. Yates, Resource Economics, Environmental Markets

Adjunct Associate Professors

Marc Alperin, Carbon Cycling in Coastal Sediments, Global Carbon Budgets
Todd Bendor, Computer Modeling in Human Ecological Impacts, Land Use and Environmental Planning
Karl Castillo, Ecophysiology of Coral Reefs, Climate Change and Ocean Acidification Effects
Xiaodong Chen, Coupled Human-Natural Systems, Remote Sensing and GIS
Joel Fodrie, Coastal Biological Oceanography
Clark Gray, Population Mobility and Environmental Change
Allen Hurlbert, Community Ecology, Biogeography, Avian Ecology
Nihkil Kaza, Urban Development, Energy Planning and Landscape
Charles E. Konrad, Synoptic Climatology and Climate Change
Adrian Marchetti, Ecophysiology and Molecular Biology of Marine Phytoplankton
Aaron Moody, Remote Sensing, Landscape Ecology, Biogeography, Geographical Information Systems
Laura Moore, Large-Scale Geologic and Modern Evolution of Coastal Environments
Tamlin Pavelsky, World Hydrology, Remote Sensing
Johanna Rosman, Coastal and Estuarine Physcial Oceanography
Alan Weakley, Plant Systematics, Floristics, Biogeography, Conservation Biology, Bioinformatics
Colin West, Human Ecology of Global Change, Ecological Anthropology
Erika Wise, Climatology and Endrochronology, Climate Variability

Adjunct Assistant Professors

Elizabeth Dickinson, Environmental Communication
Lindsay Dubbs, Ecological and Environmental Impacts on Energy Generation, Biogeochemistry
Diego Riveros-Iregui, Watershed and Ecohydrology, Biogeochemistry
Alecia Septer, Microbial Ecology, Microbiology
James Umbanhowar, Theoretical Ecology, Dynamics of Species Interactions Webs, Host-Parasitoid Interactions

Faculty Emeriti

Richard N. Andrews, Environmental and Energy Policy, Policy Instruments and Incentives
Joe Carter, Invertebrate Paleontology
John W. Florin, Population Geography, Medical Geography
R. Haven Wiley, Behavioral Ecology of Vertebrates, Avian Social Behavior

ENEC

Advanced Undergraduate and Graduate-level Courses

ENEC 403. Environmental Chemistry Processes. 3 Credits.
Required preparation, a background in chemistry and mathematics, including ordinary differential equations. Chemical processes occurring in natural and engineered systems: chemical cycles; transport and transformation processes of chemicals in air, water, and multimedia environments; chemical dynamics; thermodynamics; structure/activity relationships.
Grading status: Letter grade
Same as: ENVR 403.

ENEC 405. Mountain Preservation. 4 Credits.
Introduces students to approaches used to preserve the natural and cultural heritage of the Southern Appalachians. Taught at off-campus field station.
Grading status: Letter grade.

ENEC 406. Atmospheric Processes II. 4 Credits.
Principles of analysis of the atmosphere are applied to the analysis of environmental phenomena. The link between the atmosphere and other environmental compartments is explored through environmental case studies.
Grading status: Letter grade
Same as: GEOG 406.

ENEC 407. Principles of Energy Conversion. 3 Credits.
Recommended preparation, ENEC 201, and MATH 152 or 231. This course will get students familiar with the principles governing the conversion of a variety of non-renewable and renewable resources to energy services. Physical, chemical, and biological principles involved in the design and analysis of these systems will be reviewed. The basics of project economics applied to the design of energy conversion systems will also be introduced.
Grading status: Letter grade.

ENEC 410. Earth Processes in Environmental Systems. 4 Credits.
Principles of geological and related Earth systems sciences are applied to analyses of environmental phenomena. The link between the lithosphere and other environmental compartments is explored through case studies of environmental issues. Three lecture hours and one laboratory hour a week.
Requisites: Prerequisites, CHEM 102, GEOL 200, MATH 231, and PHYS 115 or 119; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: GEOL 410, MASC 410.

ENEC 411. Oceanic Processes in Environmental Systems. 4 Credits.
Principles of analysis of the ocean, coast, and estuarine environments and the processes that control these environments are applied to the analysis of environmental phenomena. Case studies of environmental issues. Three lecture hours and one laboratory hour a week.
Requisites: Prerequisites, BIOL 101, CHEM 102, ENEC 222, MATH 231, PHYS 115 or 119; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: GEOL 411, MASC 411.

ENEC 415. Environmental Systems Modeling. 3 Credits.
This course explores principles and strategies for studying environmental phenomena, and presents methods for developing explanatory and predictive models of environmental systems, e.g., predator-prey, estuaries, greenhouse gases, and ecosystem material cycles.
Requisites: Prerequisite, MATH 383; pre- or corequisite, PHYS 115 or 118, and COMP 116.
Grading status: Letter grade
Same as: GEOL 415, MASC 415.

ENEC 416. Environmental Meteorology. 3 Credits.
This course explores atmospheric processes most important to environmental problems such as the transport and transformation of air pollutants and weather systems involved in intercontinental transport of gases and particles.
Grading status: Letter grade.

ENEC 417. Geomorphology. 3 Credits.
Introduction to process geomorphology with emphasis on quantitative interpretation of weathering, hill slope, fluvial, glacial, and eolian processes from topography and landscapes.
Requisites: Prerequisites, GEOL 101, 200, or 201; and MATH 231; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: GEOL 417.

ENEC 420. Community Design and Green Architecture. 3 Credits.
The impact of building on the environment and health will be examined by looking at the major areas of: land use planning, water resource use, energy, materials and indoor environment.
Grading status: Letter grade
Same as: PLAN 420.

ENEC 431. Sustainable Cities: Exploring Ways of Making Cities More Sustainable. 3 Credits.
Recommended preparation, ENEC 330. For the first time in history, a majority of the world's people live in cities with huge implications for sustainability. Students will examine the factors driving the trend toward urbanization worldwide, the challenges posed by this trend, and the efforts by cities to become more sustainable.
Grading status: Letter grade.

ENEC 432. Environmental Life Cycle Assessment. 3 Credits.
Recommended preparation, ENEC 201, and MATH 110 or 130. This class will introduce students to environmental life cycle assessment (LCA). The methodology to calculate the environmental impacts associated with a product, a service, or a system will be reviewed through case studies in the field of energy systems, waste management, and eco-design. Students will also get a chance to learn how to perform a full LCA through a hands-on project using LCA software and databases.
Grading status: Letter grade.

ENEC 433. Wetland Hydrology. 3 Credits.
Study of wetland ecosystems with particular emphasis on hydrological functioning, the transition from terrestrial to aquatic systems, wetlands as filtration systems, and exchange between wetlands and other environments.
Grading status: Letter grade
Same as: MASC 433.

ENEC 437. Social Vulnerability to Climate Change. 3 Credits.
How does climate change affect vulnerable human populations? We will attempt to answer a shared research question on this topic by reading the peer-reviewed literature and by conducting a semester-long data analysis project incorporating social and climate data from around the world. This is a course-based undergraduate research experience (CURE).
Gen Ed: EE- Mentored Research, GL.
Grading status: Letter grade
Same as: GEOG 437.

ENEC 441. Marine Physiological Ecology. 3 Credits.
This course introduces students to the physiological, morphological, and behavioral factors employed by marine organisms to cope with their physical environment. Emphasis will be placed on the response of marine organisms to environmental factors such as seawater temperature, light, water salinity, ocean acidification, etc.
Grading status: Letter grade
Same as: MASC 441.

ENEC 444. Marine Phytoplankton. 3 Credits.
Permission of the instructor. For junior and senior science majors or graduate students. Biology of marine photosynthetic protists and cyanobacteria. Phytoplankton evolution, biodiversity, structure, function, biogeochemical cycles and genomics. Harmful algal blooms, commercial products, and climate change. Three lecture/practical session hours per week.
Grading status: Letter grade
Same as: MASC 444, BIOL 456.

ENEC 448. Coastal and Estuarine Ecology. 4 Credits.
A field-intensive study of the ecology of marine organisms and their interactions with their environment, including commercially important organisms. Laboratory/recitation/field work is included and contributes two credit hours to the course.
Requisites: Prerequisites, CHEM 102 and MATH 231.
Grading status: Letter grade
Same as: MASC 448.

ENEC 450. Biogeochemical Processes. 4 Credits.
Principles of chemistry, biology, and geology are applied to analysis of the fate and transport of materials in environmental systems, with an emphasis on those materials that form the most significant cycles. Three lecture hours and one laboratory hour a week.
Requisites: Prerequisites, MATH 231, and PHYS 114 or 118; permission of the instructor for students lacking the prerequisites.
Gen Ed: PL.
Grading status: Letter grade
Same as: GEOL 450, MASC 450.

ENEC 451. Population, Development, and the Environment. 3 Credits.
Introduction to contemporary and historical changes in human population, international development, and the global environment and how these processes interact, drawing on population geography as an organizing framework. Previously offered as GEOG 450.
Gen Ed: GL.
Grading status: Letter grade
Same as: GEOG 451.

ENEC 459. Ecological Anthropology. 3 Credits.
Examines how human-environmental adaptations shape the economic, social, and cultural lives of hunter-gatherers, pastoralists and agriculturalists. Approaches include optimal foraging theory, political ecology and subsistence risk.
Gen Ed: SS.
Grading status: Letter grade
Same as: ANTH 459.

ENEC 460. Historical Ecology. 3 Credits.
Historical ecology is a framework for integrating physical, biological, and social science data with insights from the humanities to understand the reciprocal relationship between human activity and the Earth system.
Gen Ed: HS, GL.
Grading status: Letter grade
Same as: ANTH 460.

ENEC 461. Fundamentals of Ecology. 4 Credits.
Students will develop a comprehensive understanding of the field of ecology, including modern and emerging trends in ecology. They will develop literacy in the fundamental theories and models that capture ecological processes; emphasis will also be placed on the relevance of ecology and ecological research for human society.
Requisites: Prerequisite, BIOL 201.
Grading status: Letter grade
Same as: BIOL 461.

ENEC 462. Ecosystem Management. 3 Credits.
Explores the ecological concepts underlying ecosystem management (e.g., genetic and species diversity, stability, resilience, landscape ecology, etc.), the tools used in the approach, and case studies of how communities are implementing ecosystem management.
Requisites: Prerequisite, BIOL 101.
Grading status: Letter grade.

ENEC 463. Business and the Environment. 3 Credits.
This course explores the intersection of business/economic growth and the major sustainability issues affecting the environment and societal well-being and raises questions about business ethics and the moral responsibility of business leaders, consumers, and citizens. Previously offered as ENEC 306. Honors version available
Gen Ed: PH, CI.
Grading status: Letter grade
Same as: BUSI 463.

ENEC 463H. Business and the Environment. 3 Credits.
This course explores the intersection of business/economic growth and the major sustainability issues affecting the environment and societal well-being and raises questions about business ethics and the moral responsibility of business leaders, consumers, and citizens. Previously offered as ENEC 306.
Gen Ed: PH, CI.
Grading status: Letter grade
Same as: BUSI 463H.

ENEC 468. Temporal GIS and Space/Time Geostatistics for the Environment and Public Health. 3 Credits.
Reviews geographical information systems (GIS). Covers geostatistics theory for the interpolation of environmental and health monitoring data across space and time. Uses publicly available water and air quality monitoring data to create maps used for environmental assessment, regulatory compliance analysis, exposure science, and risk analysis.
Requisites: Prerequisite, MATH 232; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: ENVR 468.

ENEC 470. Environmental Risk Assessment. 3 Credits.
Required preparation, one course in probability and statistics. Use of mathematical models and computer simulation tools to estimate the human health impacts of exposure to environmental pollutants. Three lecture hours per week.
Grading status: Letter grade
Same as: ENVR 470.

ENEC 471. Human Impacts on Estuarine Ecosystems. 4 Credits.
A cohesive examination of the human impacts on biological processes in estuarine ecosystems. Laboratory/recitation/field work is included and contributes two credit hours to the course.
Requisites: Prerequisites, CHEM 102 and MATH 231.
Grading status: Letter grade
Same as: MASC 471.

ENEC 474. Sustainable Coastal Management. 3 Credits.
This course explores the environmental history of the Albemarle estuary and its larger watershed and explores ways in which humans can utilize this region in a more sustainable manner. Taught at off-campus field station.
Grading status: Letter grade.

ENEC 475. The Political Economy of Food. 3 Credits.
This course examines the political and economic dimensions of the food we eat, how it is produced, who eats what, and related social and environmental issues, both domestic and international, affecting the production, pricing, trade, distribution, and consumption of food. Honors version available
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: PLCY 475.

ENEC 475H. The Political Economy of Food. 3 Credits.
This course examines the political and economic dimensions of the food we eat, how it is produced, who eats what, and related social and environmental issues, both domestic and international, affecting the production, pricing, trade, distribution, and consumption of food.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: PLCY 475H.

ENEC 479. Landscape Analysis. 3 Credits.
This course utilizes GIS, GPS, and remote sensing technologies to gather data on geology, watersheds, soils, integrated moisture indices. The class also develops habitat maps and derives species diversity indices. Taught at off-campus field station.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

ENEC 480. Environmental Decision Making. 3 Credits.
Introduces factors shaping environmental decision making by individuals, businesses, governments, advocacy groups, and international institutions. Explores public policy incentives and action strategies for influencing them.
Gen Ed: SS, NA.
Grading status: Letter grade
Same as: PLCY 480.

ENEC 481. Energy Economics. 3 Credits.
This course develops a core set of principles to understand and evaluate energy markets, policies, and regulations. Topics include oil markets, electric vehicles and CAFÉ standards, pollution permit markets and C02 regulations, and electricity markets.
Requisites: Prerequisite, ECON 101.
Gen Ed: SS.
Grading status: Letter grade.

ENEC 482. Energy and the Environment: A Coastal Perspective. 3 Credits.
Explores coastal and offshore energy issues, including energy demand, present-day and innovative sources of energy to meet that demand, economics, policy, and environmental and human health outcomes of different energy sources. Summer session only; online and field trip hybrid course, with a mandatory 8-day field site component on the Outer Banks. Housing and field activities arranged by the instructor, which will carry a fee. Taught at off-campus field station.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

ENEC 485. Coastal Resource Economics and Policy. 3-4 Credits.
This course develops and applies core principles essential to understanding and evaluating coastal environmental policy and renewable resource use. The principles include the economics of pollution, public choice, information and cost-benefit analysis, property rights, incentive-based regulation, and the economics of renewable resources. Includes insights from politics and ethics. Taught at off-campus field station.
Requisites: Prerequisite, ECON 101.
Grading status: Letter grade.

ENEC 489. Ecological Processes in Environmental Systems. 4 Credits.
Principles of analysis of the structure and function of ecosystems are applied to environmental phenomena. The link between the biosphere and other environmental compartments is explored through case studies of environmental issues. Three lecture hours and one laboratory hour a week. Taught at off-campus field station.
Requisites: Prerequisites, BIOL 101 or 201, CHEM 102, MATH 231, PHYS 115 or 119; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

ENEC 490. Special Topics in Environmental Science and Studies. 1-12 Credits.
Advanced topics from diverse areas of environmental science and/or environmental studies are explored. Honors version available
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

ENEC 490H. Special Topics in Environmental Science and Studies. 1-12 Credits.
Advanced topics from diverse areas of environmental science and/or environmental studies are explored.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

ENEC 491. Effective Environmental Communication. 3 Credits.
Combines theory and application to explore effective communication in various environmental contexts and professions. Offers students from diverse disciplines tools to effectively and credibly communicate about environmental topics using a spectrum of strategies, and offers methods for effective thinking, writing, and speaking.
Gen Ed: CI.
Grading status: Letter grade.

ENEC 492. Social Science Research Methods. 3 Credits.
Students learn quantitative, qualitative, and mixed methods research skills and their application to public policies and management of natural resources.
Gen Ed: SS, EE- Mentored Research.
Grading status: Letter grade.

ENEC 493. Environmental Internship. 1-4 Credits.
Permission of the instructor. This course provides an internship with an organization related to environmental sciences or studies. Pass/Fail only.
Gen Ed: EE- Academic Internship.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Pass/Fail.

ENEC 510. Policy Analysis of Global Climate Change. 3 Credits.
Provides a real-world and relevant case study in which to apply material from multiple disciplines including public policy, economics, environmental science, and international studies. Teaches techniques for building policy models not covered elsewhere.
Gen Ed: SS, GL.
Grading status: Letter grade.

ENEC 511. Stable Isotopes in the Environment. 3 Credits.
Introduction to the theory, methods, and applications of stable isotopes to environmental problems. Primary focus will be on the origin, natural abundance, and fractionation of carbon, hydrogen, oxygen, and nitrogen isotopes.
Requisites: Prerequisite, CHEM 102.
Grading status: Letter grade
Same as: GEOL 511.

ENEC 520. Environment and Development. 3 Credits.
Reviews environmental problems in developing countries. Analyzes proposed solutions, such as legal remedies, market instruments, corporate voluntary approaches, international agreements, and development policies. Discusses the link between trade and environment, environmental cases from the World Trade Organization, and sustainable development.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: PLCY 520.

ENEC 522. Environmental Change and Human Health. 3 Credits.
The course will provide students with a multidisciplinary perspective of environmental changes to encompass both human health and ecological health.
Requisites: Prerequisite, ENEC 201 or 202.
Grading status: Letter grade
Same as: ENVR 522.

ENEC 530. Principles of Climate Modeling. 3 Credits.
Recommended preparation, MATH 383. Develops explanatory and predictive models of the earth's climate. The level is introductory and the emphasis is on modeling past climate with the hope of understanding its future.
Requisites: Prerequisites, MATH 231, 232, and 233; PHYS 118 and 119.
Grading status: Letter grade.

ENEC 547. Energy, Transportation, and Land Use. 3 Credits.
This course explores the reciprocal connections between energy (production/conversion, distribution, and use), land use, environment, and transportation. Evaluation of federal, state, and local policies on energy conservation and alternative energy sources are emphasized. Students gain skills to analyze impacts, interdependencies, and uncertainties of various energy conservation measures and production technologies.
Grading status: Letter grade
Same as: PLAN 547.

ENEC 562. Statistics for Environmental Scientists. 4 Credits.
Introduction to the application of quantitative and statistical methods in environmental science, including environmental monitoring, assessment, threshold exceedance, risk assessment, and environmental decision making.
Requisites: Prerequisite, STOR 155.
Grading status: Letter grade
Same as: BIOL 562.

ENEC 563. Statistical Analysis in Ecology and Evolution. 4 Credits.
Application of modern statistical analysis and data modeling in ecological and evolutionary research. Emphasis is on computer-intensive methods and model-based approaches. Familiarity with standard parametic statistics is assumed.
Requisites: Prerequisites, MATH 231 and STOR 151; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: BIOL 563.

ENEC 565. Environmental Storytelling. 3 Credits.
An interdisciplinary course for students interested in environmental issues or journalism to produce stories about environmental issues that matter to North Carolinians. Students learn to identify credible sources, manage substantial amounts of information, and find story focus as they report on technical and often controversial subjects in a variety of media.
Grading status: Letter grade
Same as: MEJO 565.

ENEC 567. Ecological Analyses and Application. 3 Credits.
This course provides an overview of natural and social science approaches to addressing biodiversity conservation and resource management. Concepts and methods from population biology, evolutionary ecology, community ecology, and conservation biology will be complemented with approaches from common property theory, indigenous resource management, and human evolutionary ecology.
Grading status: Letter grade.

ENEC 569. Current Issues in Ecology. 3 Credits.
Required preparation, previous course work in ecology. Permission of the instructor. Topics vary but focus on interdisciplinary problems facing humans and/or the environment. May be repeated for credit.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENEC 580. Environmental Markets: Science and Economics. 3 Credits.
Examines the interplay of science and economics in the design of environmental markets. The first part introduces the principles of environmental economics. The second part considers several case studies that illustrate the critical role that scientific models of natural systems play in the design of environmental markets.
Grading status: Letter grade.

ENEC 581. Water Resource Planning and Policy Analysis. 3 Credits.
Water resources demand-supply relationships, United States water resource and related water quality policy, legal structure for water allocation, planning, project and program evaluation, and pricing. Strategies for coping with floods, droughts, and climate change will be explored. Extensive use of case studies.
Grading status: Letter grade.

ENEC 585. American Environmental Policy. 3 Credits.
Intensive introduction to environmental management and policy, including environmental and health risks; policy institutions, processes, and instruments; policy analysis; and major elements of American environmental policy. Lectures and case studies. Three lecture hours per week.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: ENVR 585, PLAN 585, PLCY 585.

ENEC 586. Water Quality Policies and Planning. 3 Credits.
Introduction to the management of water quality at the local and basinwide scales. Topics include theory and management frameworks; state and federal statutes and programs; water contaminants, their fate and transport; alternatives for improving and protecting water quality; and the technologies and management practices of selected basinwide comprehensive strategies.
Requisites: Prerequisites, BIOL 101 and MATH 231.
Grading status: Letter grade.

ENEC 593. Environmental Practicum. 1-3 Credits.
Permission of the instructor required. Students receive service-learning credit through active participation in a community, campus, or other approved group project.
Gen Ed: EE- Academic Internship.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENEC 602. Professional Development Skills for Ecologists and Biologists. 3 Credits.
The goal of this course is to help students who intend to become professional ecologists or biologists acquire critical skills and strategies needed for achieving their career goals.
Grading status: Letter grade
Same as: BIOL 602.

ENEC 608. Continuum Mechanics in the Earth Sciences. 3 Credits.
Applications of continuum mechanics in the earth sciences, including stress, strain, elasticity, and viscous flow. Numerical solutions to problems in heterogeneous finite strain including finite element analysis.
Requisites: Prerequisites, GEOL 302, and PHYS 114, 116, or 118.
Grading status: Letter grade
Same as: GEOL 608.

ENEC 641. Watershed Planning. 3 Credits.
This course explores the functions of ecosystems, land development activities that impact such functions, and the land use management tools to create strategies for mitigating and restoring environmental damage. Course goals include understanding the ecological context of planning and how ecological principles may inform planning decisions. Prepares planners to engage effectively with biologists, natural resource managers, park managers, and other professionals from the natural sciences.
Grading status: Letter grade
Same as: PLAN 641.

ENEC 669. Seminar in Ecology. 1-3 Credits.
May be repeated for credit.
Requisites: Prerequisite, BIOL 201; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 12 total completions.
Grading status: Letter grade
Same as: BIOL 669.

ENEC 675. Environmental Communication and the Public Sphere. 3 Credits.
Examines communication practices that accompany citizen participation in environmental decisions, including public education campaigns of nonprofit organizations, "risk communication," media representations, and mediation in environmental disputes.
Grading status: Letter grade.

ENEC 685. Environmental and Resource Economics. 3 Credits.
Theory and methods of environmental economics. Topics covered include cost-benefit analysis and environmental policy analysis, economic concept of sustainability, optimal use of natural resources, nonmarket valuation, and economic instruments.
Requisites: Prerequisite, ECON 310.
Grading status: Letter grade.

ENEC 686. Policy Instruments for Environmental Management. 3 Credits.
Design of public policy instruments as incentives for sustainable management of environmental resources and ecosystems, and comparison of the effects and effectiveness of alternative policies.
Requisites: Prerequisite, ECON 410 or PLAN 710.
Gen Ed: SS.
Grading status: Letter grade
Same as: PLCY 686, ENVR 686, PLAN 686.

ENEC 693H. Honors Research in Environmental Sciences and Studies. 3 Credits.
Permission of the director of undergraduate studies. First of two course sequence leading to the honors designation.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ENEC 694H. Honors Project in Environmental Sciences and Studies. 3 Credits.
Permission of the director of undergraduate studies. Independent project leading to the honors designation. Includes weekly research seminar.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ENEC 698. Capstone: Analysis and Solution of Environmental Problems. 3 Credits.
Interdisciplinary, team-based analyses of environmental phenomena are performed and applied to problems of the selection of effective environmental strategies. Students may select from a wide range of examples and venues.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

ENEC 710. Advanced Coastal Environmental Change. 3 Credits.
Focuses on biological-physical couplings that shape coastal environments (i.e. coastal 'ecomorphodynamics') and determine how these environments change with climate and land use. Environments include: barrier islands, open ocean coastlines, and tidal wetlands. Grading based on presentations, participation, and a research proposal.
Requisites: Prerequisites, GEOL 417, 502, or 503; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: GEOL 710, MASC 730.

ENEC 765. Field Experience in Ecology. 2 Credits.
Graduate standing in ecology required. Organized field work in remote environments with a faculty instructor as approved by student's supervisory committee. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ENEC 891. Special Topics in Ecology. 2-4 Credits.
Permission of the instructor. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ENEC 961. Research in Ecology. 1-15 Credits.
Acquaints early career graduate students with research techniques and assesses their propensity for research. Arranged by mutual agreement of the student and faculty member.
Grading status: Letter grade.

ENEC 992. Master's (Non-Thesis). 3 Credits.

ENEC 993. Master's Research and Thesis. 3 Credits.

ENEC 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF ENVIRONMENTAL SCIENCES AND ENGINEERING (GRAD)

Contact Information

Department of Environmental Sciences and Engineering
Visit Program Website (http://www.sph.unc.edu/envr)

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Environmental Sciences and Engineering is a department within the Gillings School of Global Public Health.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Louise M. Ball (62), Metabolism, Toxicology and Genotoxicity of Xenobiotics
John M. Bane Jr., Marine Sciences, Physical Oceanography
James K. Bartram (12), Water, Sanitation and Hygiene in Development, Global Health
Gregory W. Characklis (98), Water Resources Engineering, Economics and Management
Carol Folt
Rebecca C. Fry (7), Toxicogenomics, Genetic Toxicology, *Associate Chair for Strategic Initiatives*
Jacqueline A. MacDonald Gibson (15),Environmental Risk Assessment, Environmental Decision Analysis
Avram Gold (43), *Associate Chair for Academics;* Environmental Chemistry
Ilona Jaspers (99), *Associate Director, UNC–Chapel Hill Center for Environmental Medicine, Asthma, and Lung Biology;* Health Effects of Air Pollution in the Lung
Richard A. Luettich Jr. (68), *Director, Institute of Marine Science;* Marine Sciences, Coastal Physics, Hurricane Storm Surge Modeling
Christopher S. Martens (92), Marine Sciences, Biogeochemistry
Cass T. Miller (59), Porous Medium Systems, Environmental Physics, Environmental Modeling
Rachel T. Noble (110), Marine Microbial Ecology, Water Quality Microbiology, Non-Point Source (e.g., Stormwater), Contamination of Receiving Waters
Leena A. Nylander-French (95), Skin and Inhalation Exposures to Toxicants, Exposure Modeling
Hans W. Paerl (65), Aquatic Microbial Ecology, Marine and Freshwater Nutrient Cycling
Michael C. Piehler (33), Marine Environmental Sciences, Environmental Microbial Ecology
Jason Surratt (30),Atmospheric Chemistry, Secondary Organic Aerosols, Heterogeneous Chemistry, Air Pollution
Barbara J. Turpin (32), Atmospheric Chemistry, Air Pollution and Human Exposure
Paul B. Watkins, *Director, General Clinical Research Center, UNC Hospitals*
Howard S. Weinberg (96), Aquatic Chemistry, Environmental Analytical Chemistry, Drinking Water Treatment, Occurrence, Fate, and Transport of Chemical Pollutants
J. Jason West (16),Air Pollution, Climate Change, Atmospheric Modeling, Global Health, Environmental Policy, Environmental Engineering
Dale Whittington (70), Water Resources Economics, International Development

Professor of the Practice

Pete Kolsky (18), Water Supply Planning and Sanitation

Associate Professors

Orlando Coronell (10), Physico-Chemical Processes for Water Treatment; Characterization, Modeling, and Application of Membrane Technologies
Kun Lu (37),Microbiome, Exposome, Omics Profiling (Metabolomics, Proteomics, Lipidomics), DNA Adducts, Biomarker Development, Cancer, Chronic Inflammation, Children's Health
Marc L. Serre (100), Space/Time Statistics, Exposure Assessment, Environmental Modeling, Hydrology, Geostatistics, GIS, Environmental Epidemiology, Risk Assessment, Medical Geography
Jill R. Stewart (26), Water Quality Microbiology, Ecological Assessment and Prediction
Jason Surratt (30), Atmospheric Chemistry, Secondary Organic Aerosols, Heterogeneous Chemistry, Air Pollution
William Vizuete (6), Atmospheric Modeling, Air Pollution, Environmental Engineering, Atmospheric Chemistry, *Director, MSEE Program*

Research Professors

Michael R. Flynn (61), Exposure Assessment, Industrial Hygiene, Ventilation Systems
Richard M. Kamens Atmospheric Gas-Particle Partitioning, Modeling
Glenn Morrison, Indoor Air, Surface Chemistry, Human Exposure
Mark D. Sobsey (38),Environmental Health Microbiology; Virology; Water, Sanitation and Hygiene

Research Assistant Professors

Karsten Baumann, Aerosol Chemistry
Wanda M. Bodnar (85), *Director, Molecular Analysis Facility Core*; UNC Biomarker Mass Spectrometry Core Facility, Analytical Chemistry, Mass Spectrometry
Radhika Dhingra, Air pollution, Epidemiology, Epigenetics, Health Effects
Michael Fisher, Global Water, Sanitation and Hygiene
Julia Rager, Environmental Sciences, Exposure Assessment, Genetics, Toxicology
Zhenfa Zhang, Synthetic Organic Chemistry

Clinical Assistant Professor

Courtney Woods (51), *Director, M.P.H. Program;* Health Equity, Systems Modeling, Environmental Epidemiology, Risk Assessment, Global Health

Adjunct Professors

Gregory Allgood, Water, Sanitation and Hygiene in Development, Global Health
Sarav Arunachalam, Air Quality Modeling, Analyses, and Health Risk; Environmental Policy
Francis S. Binkowski, Air Quality, Meteorology
Linda S. Birnbaum (86), Xenobiotic Metabolism, Biochemical Toxicology
Clarissa Brocklehurst, Water Supply and Sanitation
Daniel L. Costa (97), Pulmonary Toxicology

Pat Curran, Occupational Safety, Industrial Hygiene
David M. DeMarini (81), Genetic Toxicology
Felix Dodds, Sustainable Development, Finance, Climate, Environmental Security
Shabbir H. Gheewala, Life Cycle Assessment
M. Ian Gilmour, Immunotoxicology
David H. Leith (56), Air Pollution Control Engineering, Aerosol Technology
Michael Madden (101), Toxicology
Valeria Ochoa, Biological and Physico-Chemical Wastewater Treatment, Bioremediation, Biotechnology, Sustainability
David Peden, Immunotoxicology, Cardiopulmonary Toxicology, Translational and Clinical Research in Environmental Lung Disease
Terrence K. Pierson, Environmental Risk Assessment
Joseph Pinto (82), Atmospheric Modeling
Joachim Pleil (106), Exposure Assessment
Havala Pye, Air Quality Modeling
Eva A. Rehfuess, Evidence-Based Public Health Methods, Complex Intervention Evaluations, Child Health in Developing Countries
Bonnie Rogers, Occupational Health Nursing
James M. Samet (67), Mechanistic Toxicology, Cardiopulmonary Toxicology, Ambient Air Pollutants
Woodhall Stopford (76), Occupational Medicine Physics
Miroslav Styblo (79), Nutritional Biochemistry and Biochemical Toxicology
John Tomaro, *Research Collaborator for the Water Institute*

Adjunct Associate Professors

John M. Dement, Environmental Health and Industrial Hygiene
Janice Lee, Human Health Risk Assessment, Susceptibility, Mode of Action, Systematic Review
Zachary Pekar, Human Health Risk Assessments and Regulatory Impact Analysis as Part of Regulatory Review for Criteria Air Pollutants, Multipath Risk Assessment Modeling
Roger Sit,Radiation Physics
Thomas B. Starr, Risk Assessment

Adjunct Assistant Professors

Jared Bowden, Air Quality and Climate Modeling
Kim Haley, Industrial Hygiene
Crystal Lee Pow Jackson, Occupational and Environmental Epidemiology
Jordan Kern, Environmental modeling, Systems Analysis, Finanical Risk Management
Jacky Rosati (29), Exposure Assessment
W. Jon Wallace, Occupational Safety and Health Education

Adjunct Lecturer

Raymond W. Hackney, Industrial Hygiene

Adjunct Instructor

Nigel Stuart, Water, Sanitation and Hygiene (WaSH)

Professors Emeriti

Richard N.L. Andrews
Russell F. Christman
Douglas Crawford-Brown
Francis A. DiGiano
Donald L. Fox
Harvey E. Jeffries
Pete Kolsky
Donald T. Lauria
David H. Moreau
Frederic Pfaender
Mark S. Shuman
Philip C. Singer
James Swenberg
Charles M. Weiss
Stephen C. Whalen
Donald Willhoit

Clinical Professor Emeritus

Donald E. Francisco

ENVR

Advanced Undergraduate and Graduate-level Courses

ENVR 400. Seminar Series. 1 Credit.
Presents the results of ongoing research projects in the Department of Environmental Sciences and Engineering. Topics and presenters are selected from among the departmental graduate students and faculty.
Grading status: Letter grade.

ENVR 403. Environmental Chemistry Processes. 3 Credits.
Required preparation, a background in chemistry and mathematics, including ordinary differential equations. Chemical processes occurring in natural and engineered systems: chemical cycles; transport and transformation processes of chemicals in air, water, and multimedia environments; chemical dynamics; thermodynamics; structure/activity relationships.
Grading status: Letter grade
Same as: ENEC 403.

ENVR 404. Life Cycle Assessment: Energy and the Environment. 3 Credits.
A systems approach to dealing with environmental pollution problems is highlighted and Life Cycle Assessment (LCA) is introduced as an assessment tool. Topics include basic environmental interactions; biogeochemical cycles and environmental impacts (global, regional, and local); and application of LCA to waste management and energy conversion systems; are addressed.
Grading status: Letter grade.

ENVR 411. Laboratory Techniques and Field Measurements. 3 Credits.
Students learn laboratory, field, and analytical skills. Provides a solid introduction to experimental research in environmental sciences and engineering. Students are provided with applications in limnology, aquatic chemistry, and industrial hygiene.
Grading status: Letter grade.

ENVR 412. Ecological Microbiology. 3 Credits.
Required preparation, one course in general microbiology. A description of microbial populations and communities, the environmental processes they influence, and how they can be controlled to the benefit of humankind.
Grading status: Letter grade.

ENVR 413. Limnology. 3 Credits.
Required preparation, introductory biology, chemistry, and physics. Basic aspects of freshwater ecosystem function. Emphasis on trophic-level interactions and integration of physical, chemical, and biological principles for a holistic view of lake ecosystem dynamics.
Grading status: Letter grade.

ENVR 416. Aerosol Physics and Chemistry. 4 Credits.
Permission of the instructor for nonmajors. Physical and chemical principles underlying behavior of particles suspended in air. Topics include rectilinear and curvilinear motion of the particles in a force field, diffusion, evaporation, and condensation, electrical and optical properties, and particle coagulation. Three lecture hours a week and two laboratory sessions.
Grading status: Letter grade.

ENVR 417. Oceanography. 3 Credits.
Required preparation, major in a natural science or two courses in natural sciences. Studies origin of ocean basins, seawater chemistry and dynamics, biological communities, sedimentary record, and oceanographic history. Term paper. Students lacking science background should see MASC 101. Students may not receive credit for both MASC 101 and MASC 401.
Grading status: Letter grade
Same as: MASC 401, BIOL 350, GEOL 403.

ENVR 419. Chemical Equilibria in Natural Waters. 3 Credits.
Principles and applications of chemical equilibria to natural waters. Acid-base, solubility, complex formation, and redox reactions are discussed. This course uses a problem-solving approach to illustrate chemical speciation and environmental implications. Three lecture hours per week.
Grading status: Letter grade.

ENVR 421. Environmental Health Microbiology. 3 Credits.
Required preparation, introductory course in microbiology or permission of the instructor. Presentation of the microbes of public health importance in water, food, and air, including their detection, occurrence, transport, and survival in the environment; epidemiology and risks from environmental exposure. Two lecture and two laboratory hours per week.
Grading status: Letter grade.

ENVR 423. Industrial Toxicology. 3 Credits.
Toxicological assessment of and a case presentation of related exposure is given. A conceptual approach is utilized to design appropriate programs to prevent worker ill health due to toxicant exposure
Grading status: Letter grade
Same as: PHNU 423.

ENVR 425. Introduction to Health Physics: Radiation and Radiation Protection. 3 Credits.
This course concentrates on fundamentals of radiation and protection, including types of radiation, radioactive decay, interaction with matter, biological effects, detection and measurement, protection methods/techniques, external and internal dose, etc. Lectures include hazards in categories of environmental radiation, nuclear energy, medical applications, industrial uses, etc.
Grading status: Letter grade.

ENVR 430. Health Effects of Environmental Agents. 3 Credits.
Required preparation, basic biology, chemistry through organic, calculus. Permission of the instructor for students lacking this preparation. Interactions of environmental agents (chemicals, infectious organisms, radiation) with biological systems including humans, with attention to routes of entry, distribution, metabolism, elimination, and mechanisms of adverse effects. Three lecture hours per week.
Grading status: Letter grade.

ENVR 431. Techniques in Environmental Health Sciences. 2 Credits.
Required preparation, basic biology, chemistry through organic, math through calculus; permission of the instructor for students lacking this preparation. A practical introduction to the measurement of biological end-points, emphasizing adverse effects of environmental agents, using laboratory and field techniques. Two laboratory hours per week.
Grading status: Letter grade.

ENVR 432. Occupational Safety and Ergonomics. 3 Credits.
Fundamentals of occupational safety and ergonomics with emphasis on legislation and organization of industrial safety and ergonomic programs, including hazard recognition, analysis, control, and motivational factors pertaining to industrial accident and cumulative trauma disorder prevention.
Grading status: Letter grade.

ENVR 433. Health Hazards of Industrial Operation. 3 Credits.
An introduction to the health hazards associated with the various unit operations of industry. Field trips to local industries planned.
Grading status: Letter grade.

ENVR 442. Biochemical Toxicology. 3 Credits.
Required preparation, one course in biochemistry. Biochemical actions of toxicants and assessment of cellular damage by biochemical measurements. Three lecture hours per week.
Requisites: Prerequisite, CHEM 430; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: BIOC 442, TOXC 442.

ENVR 451. Elements of Chemical Reactor Engineering. 3 Credits.
Focuses on chemical reaction rates and reaction mechanisms. Covers mole balances, rate laws, chemical kinetics, and reactor design. Principles are applied to any environmental system where chemical transformations must be described. Three lecture hours per week.
Grading status: Letter grade.

ENVR 452. Fluid Dynamics. 3 Credits.
The physical properties of fluids, kinematics, governing equations, viscous incompressible flow, vorticity dynamics, boundary layers, irrotational incompressible flow.
Requisites: Prerequisite, PHYS 401; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: MASC 560, GEOL 560, PHYS 660.

ENVR 453. Groundwater Hydrology. 3 Credits.
Required preparation, math through differential equations and some familiarity with fluid mechanics. Conservation principles for mass, momentum, and energy developed and applied to groundwater systems. Scope includes the movement of water, gas, and organic liquid phases, the transport and reaction of contaminants. Three lecture hours per week.
Grading status: Letter grade.

ENVR 468. Temporal GIS and Space/Time Geostatistics for the Environment and Public Health. 3 Credits.
Reviews geographical information systems (GIS). Covers geostatistics theory for the interpolation of environmental and health monitoring data across space and time. Uses publicly available water and air quality monitoring data to create maps used for environmental assessment, regulatory compliance analysis, exposure science, and risk analysis.
Requisites: Prerequisite, MATH 232; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: ENEC 468.

ENVR 470. Environmental Risk Assessment. 3 Credits.
Required preparation, one course in probability and statistics. Use of mathematical models and computer simulation tools to estimate the human health impacts of exposure to environmental pollutants. Three lecture hours per week.
Grading status: Letter grade
Same as: ENEC 470.

ENVR 472. Quantitative Risk Assessment in Environmental Health Microbiology. 3 Credits.
Recommended preparation, microbiology, epidemiology, and infectious diseases. Survey of alternative approaches, frameworks, and decision-making tools for quantitative risk assessment of microbial pathogens that infect humans and cause disease by the exposure routes of water, food, air, and other vehicles.
Grading status: Letter grade.

ENVR 475. Global Climate Change: Interdisciplinary Perspectives. 1 Credit.
This class addresses the complexity and importance of global climate change from several disciplines. A top expert will lecture each week, addressing several themes including the science of human influences on climate, impacts and adaptation, global energy and technology, communication, and economics and international solutions. Pass/Fail only.
Grading status: Pass/Fail.

ENVR 480. Modeling of Marine and Earth Systems. 1-3 Credits.
Mathematical modeling of dynamic systems, linear and nonlinear. The fundamental budget equation. Case studies in modeling transport, biogeochemical processes, population dynamics. Analytical and numerical techniques; chaos theory; fractal geometry.
Requisites: Prerequisite, MATH 232; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: MASC 480, GEOL 480.

ENVR 500. Environmental Processes, Exposure, and Risk Assessment. 3 Credits.
Environmental chemical and biological transport and transformation, exposure to environmental contaminants, and environmental risk assessment.
Requisites: Prerequisite, CHEM 261.
Grading status: Letter grade.

ENVR 505. Chemical Oceanography. 4 Credits.
Graduate students only; undergraduates must have permission of the instructor. Overview of chemical processes in the ocean. Topics include physical chemistry of seawater, major element cycles, hydrothermal vents, geochemical tracers, air-sea gas exchange, particle transport, sedimentary processes, and marine organic geochemistry. Three lecture and two recitation hours per week.
Gen Ed: PL.
Grading status: Letter grade
Same as: MASC 505, GEOL 505.

ENVR 514. Measurement of NOx, O3, and Volatile Organic Compounds. 3 Credits.
This course is intended to develop a student's ability to operate the primary instruments for measuring these important pollutants, collect and process samples where necessary, record data, and process instrument data into final air concentration data.
Grading status: Letter grade.

ENVR 520. Biological Oceanography. 4 Credits.
For graduate students; undergraduates need permission of the instructor. Marine ecosystem processes pertaining to the structure, function, and ecological interactions of biological communities; management of biological resources; taxonomy and natural history of pelagic and benthic marine organisms. Three lecture and one recitation hours per week. Two mandatory weekend fieldtrips.
Gen Ed: PL.
Grading status: Letter grade
Same as: MASC 504, BIOL 657.

ENVR 522. Environmental Change and Human Health. 3 Credits.
The course will provide students with a multidisciplinary perspective of environmental changes to encompass both human health and ecological health.
Requisites: Prerequisite, ENEC 201 or 202.
Grading status: Letter grade
Same as: ENEC 522.

ENVR 525. Water, Sanitation, Hygiene, and Global Health. 3 Credits.
Builds on an understanding of infectious and toxic hazards, disease causation, and environmental transmission. Deals with hazard and disease classification; safety, risk, and vulnerability; interventions and their health impact; approaches in different settings; distal factors (e.g., water scarcity, climate change); and approaches to studying unsafe water, sanitation, and hygiene. Previously offered as ENVR 682.
Grading status: Letter grade.

ENVR 552. Organic Geochemistry. 3 Credits.
Recommended preparation, CHEM 261 or MASC 505, and one additional ENVR, GEOL, or MASC course above 400. Sources, transformations, and fate of natural organic matter in marine environments. Emphasis on interplay of chemical, biological, and physical processes that affect organic matter composition, distribution, and turnover.
Gen Ed: PL.
Grading status: Letter grade
Same as: MASC 552, GEOL 552.

ENVR 570. Methods of Environmental Decision Analysis. 3 Credits.
Required preparation, one course in probability and statistics. Use of quantitative tools for balancing conflicting priorities (such as costs versus human health protection) and evaluating uncertainties when making environmental decisions.
Grading status: Letter grade.

ENVR 575. Global Climate Change: Science, Impacts, Solutions. 3 Credits.
This class addresses the importance of climate change in its entirety. The first half of the course addresses climate science, followed by climate change impacts, energy and mitigation technologies, economics, and international politics. Improving communication and quantitative skills is emphasized through homework, in-class presentations, and a research paper.
Grading status: Letter grade.

ENVR 580. Policy Design for Environmental Health Solutions. 3 Credits.
Students will be introduced to the types of policy instruments that can be used to solve environmental health problems. The course provides a framework for understanding the tasks involved, the main institutions responsible, and an in-depth description of the policy instruments used to tackle environmental health problems.
Grading status: Letter grade.

ENVR 582. Sanitation for Development. 3 Credits.
Over a million children die yearly from diarrhea, in part because 1.5 billion humans do not have access to a basic toilet. This course will enable students to understand public health and environmental consequences of inadequate sanitation, basic sanitation technologies, and a number of approaches to its social promotion.
Gen Ed: PL, GL.
Grading status: Letter grade.

ENVR 585. American Environmental Policy. 3 Credits.
Intensive introduction to environmental management and policy, including environmental and health risks; policy institutions, processes, and instruments; policy analysis; and major elements of American environmental policy. Lectures and case studies. Three lecture hours per week.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: ENEC 585, PLAN 585, PLCY 585.

ENVR 593. Undergraduate Practicum in Environmental Health Sciences. 1-3 Credits.
A practical experience in a setting relevant to environmental health.
Gen Ed: EE- Academic Internship.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENVR 600. Environmental Health. 3 Credits.
This course examines the relationship between environmental quality, human health and welfare, with particular attention to contamination in human environment; physical, biological, and social factors; trade-offs regarding prevention and remediation measures. Satisfies core School of Public Health requirement. Three lecture hours per week.
Grading status: Letter grade.

ENVR 601. Epidemiology for Environmental Scientists. 3 Credits.
An introduction to relevant epidemiologic concepts that inform environmental science research. Learning objectives include discussing basic epidemiologic concepts and measures of disease occurrence in populations, explaining epidemiological study designs for studying associations between risk factors or exposures in populations, evaluating epidemiologic evidence, and comprehending basic ethical principles.
Grading status: Letter grade.

ENVR 610. Global Perspectives on Environmental Health Inequalities. 3 Credits.
Students will learn about how social, economic, and political factors impact environmental health outcomes and will be introduced to theories and methods for incorporating social determinants frameworks into environmental health research, as well as the role of environmental justice movements.
Grading status: Letter grade.

ENVR 630. Systems Biology in Environmental Health. 3 Credits.
Required preparation, one year of biology. Environmental systems biology examines how environmental stressors influence the components of a biological system, and how the interactions between these components result in changes in the function and behavior of that system.
Grading status: Letter grade.

ENVR 640. Environmental Exposure Assessment. 3 Credits.
Permission of the instructor for nonmajors. The course material introduces the general concepts of assessing environmental exposures to chemicals in human populations. This includes the design of ecologic and personal monitoring studies, the techniques and equipment used for sampling and analysis, and interpretation of data.
Grading status: Letter grade.

ENVR 650. Principles of Chemical Carcinogenesis. 2 Credits.
Required preparation, organic chemistry. Bioactivation of carcinogens, interaction of activated metabolites with DNA, and their effects on DNA structure, replication, repair, and the control of these processes during development of chemically induced carcinogenesis. Two lecture hours per week.
Grading status: Letter grade.

ENVR 661. Scientific Computation I. 3 Credits.
Requires some programming experience and basic numerical analysis. Error in computation, solutions of nonlinear equations, interpolation, approximation of functions, Fourier methods, numerical integration and differentiation, introduction to numerical solution of ODEs, Gaussian elimination.
Grading status: Letter grade
Same as: MATH 661.

ENVR 662. Scientific Computation II. 3 Credits.
Theory and practical issues arising in linear algebra problems derived from physical applications, e.g., discretization of ODEs and PDEs. Linear systems, linear least squares, eigenvalue problems, singular value decomposition.
Requisites: Prerequisite, MATH 661.
Grading status: Letter grade
Same as: MATH 662, COMP 662.

ENVR 666. Numerical Methods. 3 Credits.
Numerical methods for solving problems arising in sciences and engineering. Solution of linear equations using direct and iterative approaches, solution of nonlinear systems of algebraic equations, solution of ordinary differential equations including single and multistep methods, and methods for stiff systems of ODEs and collocation methods for linear and nonlinear PDEs.
Requisites: Prerequisites, COMP 116 and MATH 383.
Grading status: Letter grade.

ENVR 668. Methods of Applied Mathematics I. 3 Credits.
Requires an undergraduate course in differential equations. Contour integration, asymptotic expansions, steepest descent/stationary phase methods, special functions arising in physical applications, elliptic and theta functions, elementary bifurcation theory.
Grading status: Letter grade
Same as: MATH 668.

ENVR 669. Methods of Applied Mathematics II. 3 Credits.
Perturbation methods for ODEs and PDEs, WKBJ method, averaging and modulation theory for linear and nonlinear wave equations, long-time asymptotics of Fourier integral representations of PDEs, Green's functions, dynamical systems tools.
Requisites: Prerequisite, MATH 668.
Grading status: Letter grade
Same as: MATH 669.

ENVR 671. Environmental Physics I. 3 Credits.
A first graduate-level course in physical principles relevant to environmental systems. Topics include dimensional analysis, tensor calculus, conservation of mass and momentum. Applications are considered from natural and engineered systems and across all relevant media. Focus is on the development of mechanistic representation of environmental systems.
Grading status: Letter grade.

ENVR 672. Environmental Physics II. 3 Credits.
Second part of a graduate-level sequence in physical principles relevant to environmental systems. Topics include turbulence, conservation of energy, multiscale methods, and thermodynamics. Applications are considered from natural and engineered systems and across all relevant media. Focus is on development of mechanistic representation of environmental systems.
Requisites: Prerequisite, ENVR 671.
Grading status: Letter grade.

ENVR 673. Hydraulics for Environmental Engineering. 3 Credits.
Permission of the instructor for undergraduates. This course teaches practical basics of how to solve environmental engineering problems in the hydraulics of pipes, pumps, networks, and open channels. The course is a mix of classroom lectures, problem-solving sessions, and laboratory sessions.
Requisites: Prerequisites, MATH 231 and PHYS 114.
Grading status: Letter grade.

ENVR 675. Air Pollution, Chemistry, and Physics. 3 Credits.
This class is designed for graduate students planning for research in air pollution, emphasizing chemical kinetics and engineering approaches to problem solving in addition to atmospheric structure, meteorology, and modeling. We address problems of stratospheric and tropospheric ozone, particulate matter, and acid rain. We emphasize quantitative problem solving in homework.
Grading status: Letter grade.

ENVR 683. Water-Health Research I. 2 Credits.
Permission of the instructor for undergraduates and nonmajors. Introduces students to methods for research conception, design, planning, and implementation in fields related to water and its impacts on health. Students study approaches and tools that may be applied in water-related research and are coached in developing their own research design.
Grading status: Letter grade.

ENVR 684. Water-Health Research II. 2 Credits.
Permission of the instructor for undergraduates and nonmajors. Familiarizes students with the principles of scientific communication with an emphasis on scientific writing and oral presentations. Using their own water and health research, students learn how to communicate effectively in informal settings and how to prepare for interviews with the media.
Grading status: Letter grade.

ENVR 685. Water and Sanitation Planning and Policy in Less Developed Countries. 3 Credits.
Permission of the instructor. Seminar on policy and planning approaches for providing improved community water and sanitation services in developed countries. Topics include the choice of appropriate technology and level of service, pricing, metering, and connection charges; cost recovery and targeting subsidies to the poor; water venting; community participation in the management and operation of water systems; and rent-seeking behavior in the provision of water supplies.
Grading status: Letter grade
Same as: PLAN 685.

ENVR 686. Policy Instruments for Environmental Management. 3 Credits.
Design of public policy instruments as incentives for sustainable management of environmental resources and ecosystems, and comparison of the effects and effectiveness of alternative policies.
Requisites: Prerequisite, ECON 410 or PLAN 710.
Gen Ed: SS.
Grading status: Letter grade
Same as: PLCY 686, ENEC 686, PLAN 686.

ENVR 687. Writing for Journal Publication on Water and Sanitation Hygiene, Health, and Development. 2 Credits.
This course familiarizes students with scientific paper writing and coaches students towards journal manuscript submission. Students should have a data set of results. Sessions begin with student presentations and discussion, followed by a brief preparatory lecture on the next assignment. Substantive preparation is required between sessions.
Grading status: Letter grade.

ENVR 691H. Honors Research. 3 Credits.
Permission of the instructor. Directed readings or laboratory study of a selected topic. A written report is required in the form of an honors thesis (ENVR 692H).
Gen Ed: EE- Mentored Research.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENVR 692H. Honors Thesis. 3 Credits.
Students complete honors research projects.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ENVR 695. Undergraduate Research. 1-3 Credits.
Directed readings or laboratory study. Written reports are required. May be taken more than once for credit. Three to nine hours per week.
Gen Ed: EE- Mentored Research.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ENVR 698. Senior Capstone Course. 3 Credits.
This capstone course covers a range of issues in public health ethics, particularly focused on environmental health. Students will work on a team-based project over the course of the semester. The projects will be focused on topics that have ethical relevance and will integrate students' knowledge in environmental health.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

ENVR 701. Ecology of Aquatic Plants and Wetland Ecosystems. 3 Credits.
Adaptations of aquatic plants and microorganisms of land-water interface regions of lakes and rivers, their nutrition, growth, population dynamics, competition, herbivory, productivity, physiological control measures. Wetlands functions, values to humans. Three lecture hours per week.
Requisites: Prerequisites, BIOL 101, CHEM 101, 102; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

ENVR 703. Proposal Writing for Environmental Research. 3 Credits.
This course is intended for PhD students to become familiar with the methods for writing a research proposal, grant application or response to a request for proposal/application (RFP/RFA). The course will provide orientation in conception, planning and implementation of writing a grant.
Grading status: Letter grade.

ENVR 704. Critical Analysis of Environmental Research. 1 Credit.
This 1 credit course is intended for PhD students. Students will learn how to conduct formal peer reviews for environmental health, science and engineering journals. In so doing, they will develop skills needed to critically evaluate environmental research.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

ENVR 705. One Health: Philosophy to Practical Integration. 1-3 Credits.
This course explores the intersection of human, animal, and environmental health and facilitates the understanding of health as an inexorably linked system requiring multidisciplinary collaborative efforts. The One Health concept demonstrates the importance of a holistic approach to disease prevention and the maintenance of human, animal, and environmental health.
Grading status: Letter grade
Same as: PUBH 705.

ENVR 707. Advanced Toxicology. 3 Credits.
Cellular and physiological basis of toxicity of environmental chemicals, with emphasis on inhalation toxicology, developmental toxicology, immunotoxicology, radiation toxicology, renal toxicology, and neurotoxicology. Three lecture hours per week.
Requisites: Prerequisite, PHCO 702; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: TOXC 707, PHCO 707.

ENVR 710. Environmental Process Biotechnology. 3 Credits.
Required preparation, a previous or concurrent course in microbiology. Theory and practice of biological processes used to remove contaminants from environmental media, including water, wastewater, soil, and air.
Grading status: Letter grade.

ENVR 722. Toxicology Seminar III. 1 Credit.
Presentations by outside invited speakers, local faculty, advanced graduate students, and postdoctoral trainees. Topics will cover all areas of research in toxicology. One hour per week.
Grading status: Letter grade
Same as: TOXC 722.

ENVR 724. Current Topics in Environmental Analytical Chemistry. 1 Credit.
Students will select, critically review, and discuss current research papers for content, relevance, innovation, and clarity. Papers can be from any aspect of the environmental sciences. Two lecture hours per week, every other week.
Grading status: Letter grade.

ENVR 725. Environmental Physical-Organic Chemistry. 3 Credits.
The physical chemistry of the partitioning, exchange, and chemical transformation of organic contaminants in the water, air, and soil environments.
Grading status: Letter grade.

ENVR 726. Instrumental Methods for the Chemical Analysis of Environmental Samples. 3 Credits.
Required preparation, basic or general chemistry. Emphasis on acquiring laboratory skills and hands-on experience with instrumentation including chromatography and mass spectrometry; sample handling and preparation; quality assurance and control. Three lecture hours or one lecture hour and four laboratory hours per week.
Grading status: Letter grade.

ENVR 732. Health Effects of Outdoor and Indoor Air Pollution. 3 Credits.
Required preparation, knowledge of basic human physiology and biochemistry helpful. Assessing health effects of air pollutants on normal and diseased human populations, including children. Physiology, cellular and molecular biology, immunology, genetics, dosimetry will be integrated. Three lecture hours per week.
Grading status: Letter grade.

ENVR 742. Theory and Practice of Evaluating Human Health Risks of Chemicals. 2 Credits.
ENVR/TOXC 707 and ENVR 470 are highly recommended. This course will provide students who already have good knowledge of the basic principles of toxicology and environmental health with real-life examples of how the information is integrated for the purpose of judging what chemical exposures may pose risk to human health.
Requisites: Prerequisites, ENVR/TOXC/BIOC 442 or ENVR 430.
Grading status: Letter grade.

ENVR 754. Air Pollution Control. 3 Credits.
Engineering control of air pollution control systems and discussion of air pollution regulation and standards. Spring. (Odd-numbered years.)
Grading status: Letter grade.

ENVR 755. Analysis of Water Resource Systems. 3 Credits.
Permission of the instructor for nonmajors. Use of mathematical models to design and evaluate regional water supply and treatment systems. Engineering and economic methods are incorporated into quantitative analyses of regional scenarios. Social and political aspects also discussed. Three lecture hours per week.
Grading status: Letter grade.

ENVR 756. Physical/Chemical Treatment Processes. 3 Credits.
Principles of disinfection, oxidation, coagulation, precipitation, sedimentation, filtration, adsorption, ion exchange, and membrane processes; applications to water and wastewater treatment. Three lecture hours per week.
Requisites: Prerequisites, ENVR 419 and 451.
Grading status: Letter grade.

ENVR 757. Water and Wastewater Treatment Plant Design. 3 Credits.
The application of the theory of water and wastewater treatment to the design of municipal facilities. The course includes the principles of design and modern design practices. Design and analysis of design of specific works for water and wastewater treatment.
Requisites: Prerequisites, ENVR 710 and 756.
Grading status: Letter grade.

ENVR 758. Environmental Engineering Project. 3 Credits.
Permission of the instructor. Ad hoc project designed for a student team in addressing a current problem in environmental engineering. Projects may include laboratory or pilot-scale studies, collection and analysis of data from full-scale systems, or comprehensive analysis of relevant problems in environmental engineering practice. Three lecture hours per week.
Grading status: Letter grade.

ENVR 759. Multiphase Transport Phenomena. 3 Credits.
Continuum mechanical approach to formulating mass, momentum, energy, and entropy equations to describe multiphase transport phenomena. Three lecture hours per week.
Requisites: Prerequisite, ENVR 453.
Grading status: Letter grade.

ENVR 760. Uncertainty Quantification for Environmental Systems. 3 Credits.
Quantitative assessment of how uncertainty in mechanistic models (subsurface, ocean, atmosphere, global climate), parameters, and auxiliary conditions of a model is manifest in uncertainty in model predictions. Topics include: model formulations, statistical tools, Monte Carlo methods, moment methods, estimation methods, statistical simulation methods, reduced order models, and data assimilation approaches.
Grading status: Letter grade.

ENVR 761. Numerical ODE/PDE, I. 3 Credits.
Single, multistep methods for ODEs: stability regions, the root condition; stiff systems, backward difference formulas; two-point BVPs; stability theory; finite difference methods for linear advection diffusion equations.
Requisites: Prerequisites, MATH 661 and 662.
Grading status: Letter grade
Same as: MATH 761, MASC 781.

ENVR 762. Numerical ODE/PDE, II. 3 Credits.
Elliptic equation methods (finite differences, elements, integral equations); hyperbolic conservation law methods (Lax-Fiedrich, characteristics, entropy condition, shock tracking/capturing); spectral, pseudo-spectral methods; particle methods, fast summation, fast multipole/vortex methods.
Requisites: Prerequisite, MATH 761.
Grading status: Letter grade
Same as: MATH 762, MASC 782.

ENVR 763. Mathematical Modeling I. 3 Credits.
Nondimensionalization and identification of leading order physical effects with respect to relevant scales and phenomena; derivation of classical models of fluid mechanics (lubrication, slender filament, thin films, Stokes flow); derivation of weakly nonlinear envelope equations. Fall.
Requisites: Prerequisites, MATH 661, 662, 668, and 669.
Grading status: Letter grade
Same as: MATH 768, MASC 783.

ENVR 764. Mathematical Modeling II. 3 Credits.
Current models in science and technology: topics ranging from material science applications (e.g., flow of polymers and LCPs); geophysical applications (e.g., ocean circulation, quasi-geostrophic models, atmospheric vortices).
Requisites: Prerequisites, MATH 661, 662, 668, and 669.
Grading status: Letter grade
Same as: MATH 769, MASC 784.

ENVR 765. Space Time Exposure Mapping and Risk Assessment. 3 Credits.
Theory and MATLAB numerical implementation of linear geostatistics (simple/ordinary/universal kriging) and modern geostatistics (Bayesian Maximum Entropy) to map environmental and health processes varying across space and time. Applications in exposure assessment, environmental epidemiology, medical geography, and risk assessment.
Grading status: Letter grade.

ENVR 766. Stochastic Environmental Health Modeling. 3 Credits.
Required preparation, statistics. A holistic/stochastic perspective, spatiotemporal random field modeling of environmental exposure and biological variabilities. Uncertainty in environmental exposure. Biomarkers and population damage indicators for epidemiological analysis. Cell-based stochastic differential equations. Three lecture hours per week.
Grading status: Letter grade.

ENVR 767. Modeling for Environmental Risk Analysis. 3 Credits.
Mathematical methods for development of advanced models in environmental risk assessment, including exposure assessment and exposure-response assessment, are developed and applied. Three lecture hours per week.
Requisites: Prerequisite, ENVR 470.
Grading status: Letter grade.

ENVR 768. Microenvironmental Air Flow Modeling. 3 Credits.
Required preparation, fluid mechanics. Permission of the instructor. Applications of finite element and vortex methods for modeling air flows of significance in industrial hygiene applications. Three lecture hours per week.
Grading status: Letter grade.

ENVR 769. Quantitative Methods for Exposure Science. 3 Credits.
SAS regression and statistics, two ENVR courses (e.g. 430, 470, 707, 740, 770, 890), or permission of the instructor. Mathematical approaches for assessing environmental and/or occupational exposures to chemicals in human populations using stochastic (group) statistics, regression analysis and modeling, and pharmacokinetic modeling; focus on human biomarker data.
Requisites: Prerequisite, BIOS 511.
Grading status: Letter grade.

ENVR 770. Biological Monitoring. 3 Credits.
This course provides both practical and theoretical information on biological monitoring of chemical exposures and how to evaluate and interpret exposure data. Three lecture hours per week and a term paper (three credit hours).
Requisites: Prerequisite, ENVR 430.
Grading status: Letter grade.

ENVR 771. Exposure Analysis. 3 Credits.
This course is intended for students interested in research involving exposure to environmental contaminants. The course focuses on the integration of engineering principles, with statistical tools to enhance inference. Statistical models based on the Johnson system of distributions are explored for the analysis data including exposure-biomarker relationships.
Grading status: Letter grade.

ENVR 773. Modeling Atmospheric Chemistry. 3 Credits.
Air pollution is formed through thousands of chemical reactions. Computer models are used to simulate this complex chemistry and used to make policy. Current computational restraints force a simplified representation of atmospheric chemistry in these models, and the focus of this course is the implications of this on predictions.
Grading status: Letter grade.

ENVR 775. Global Climate Change: Interdisciplinary Perspectives. 1 Credit.
This class addresses the complexity and importance of global climate change from several disciplines. A top expert will lecture each week, addressing these themes: the science of human influences on climate; impacts and adaptation; global energy and technology; communication; and economics and international solutions.
Grading status: Letter grade.

ENVR 777. Air Quality and Atmospheric Sciences Seminar. 1 Credit.
This course gives students practice organizing a scientific presentation and speaking in front of an audience and promoting interdisciplinary interaction. Students will research topics and organize presentations for faculty and other students. The topics may be any aspect of air quality and atmospheric sciences.
Repeat rules: May be repeated for credit. 3 total credits. 3 total completions.
Grading status: Letter grade.

ENVR 780. Urban Water Services Planning and Design. 3 Credits.
This course helps students learn and apply principles of water supply sewerage and drainage planning and design, work collaboratively on real-world problems with insufficient data, and present technical findings in a clear and convincing way.
Requisites: Prerequisite, ENVR 673; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

ENVR 781. Water Resources Planning and Policy Analysis. 3 Credits.
Water resources planning and management. Federal and state water resources policies. Analytical skills to identify environmental problems associated with urban water resources development.
Grading status: Letter grade
Same as: PLAN 781.

ENVR 783. Setting Environmental Priorities. 3 Credits.
This course is intended to develop a student's ability to estimate the relative merits of research and policy actions in several broad environmental areas, with attention to the associated uncertainty. Criteria to be included are both quantitative and qualitative, with an emphasis on public health, environmental, and economic metrics.
Grading status: Letter grade.

ENVR 784. Community-Driven Research and Environmental Justice. 2 Credits.
In this course, students will learn from community residents who challenge public health scientists to conduct research on environmental and occupational hazards that impact their health.
Grading status: Letter grade.

ENVR 785. Public Investment Theory. 3 Credits.
Basic theory, process, and techniques of public investment planning and decision making, involving synthesis of economic, political, and technologic aspects. Theory underlying benefit-cost analysis, adaptation to a descriptive and normative model for planning public projects and programs.
Requisites: Prerequisite, PLAN 710.
Grading status: Letter grade
Same as: PLAN 785.

ENVR 786. Environmental Quality Management. 3 Credits.
Planning and analysis of regional environmental system with a focus on management of mass flows that affect the quality of the regional environment.
Grading status: Letter grade
Same as: PLAN 786.

ENVR 787. Applied Environmental Finance: How to Pay for Environmental Services. 3 Credits.
How can governments, communities, organizations, and businesses fund environmental services? This applied course reviews the diverse tools and strategies that environmental service providers use to pay for programs. The course will focus on environmental services related to: drinking Water, wastewater, storm-water, watershed protection, energy efficiency, renewable energy, sustainability, and wetlands.
Grading status: Letter grade
Same as: PUBA 787, PLAN 787.

ENVR 788. Managing Environmental Financial Risk. 3 Credits.
As society's exposure to environmental risks grows, it has become increasingly important to find innovative tools for mitigating these risks. This course is designed to introduce students to the fundamentals of financial risk management within an environmental context, with an emphasis on developing coupled environmental-financial systems models.
Grading status: Letter grade.

ENVR 789. International Field Research. 2 Credits.
Course offers theoretical foundations in cultural sensitivity, personal security, communication, organization and research along with guided practical exercises in conducting international field research. The result is the development of cross-cultural and applied research skills that prepare the student to conduct successful field research.
Grading status: Letter grade.

ENVR 793. Writing Scientific Papers for WaSH Peer-Reviewed Journal Publication. 2 Credits.
A two-credit, fall course open to graduate students with a complete data set with results to communicate to other scientists as a scientific paper or manuscript submission to peer-reviewed journals on an aspect of water and health. Undergraduate honors students admissible at discretion of the instructor.
Grading status: Letter grade.

ENVR 795. Critical issues in work, worker and workplace health. 3 Credits.
This course prepares students to contribute as members of an interdisciplinary team to protect and promote workers' health. Students will learn that work is a social determinant of health and explore the context in which worker health protection/promotion practitioners work. Students will be able to summarize key regulations and policies that impact work and worker health.
Grading status: Letter grade
Same as: HBEH 785.

ENVR 797. Fundamentals of Industrial Hygiene. 2 Credits.
Provides broad understanding of industrial hygiene. Major emphasis is recognition of hazards in the workplace, evaluation of measurement of those hazards, and application of control strategies.
Grading status: Letter grade.

ENVR 850. Systems Analysis in Environmental Planning. 3 Credits.
Required preparation, calculus. Applications of systems analysis techniques to the management of environmental quality.
Grading status: Letter grade.

ENVR 890. Problems in Environmental Sciences and Engineering. 1-21 Credits.
Permission of the department. For students outside the department who wish to undertake individual study of a specific problem in environmental sciences and engineering. The subject and requirements of the project are arranged with the faculty in each individual instance. One or more hours per week.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

ENVR 981. Environmental Sciences Practicum. 1-9 Credits.
A practical experience in public health/environmental health sciences.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ENVR 989. Environmental Crisis Management. 3 Credits.
This course will focus on practical solutions to public health related disasters where students extend, critique, and apply knowledge gained in the classroom. This experience-based course will have flexibility to allow for substantive contributions from students of all backgrounds enrolled in the Gillings School of Global Public Health.
Grading status: Letter grade.

ENVR 990. Environmental Engineering Brief. 1.5-3 Credits.
Students in ENVR 990 will work in concert with their advisor to identify and define an engineering problem, describe a solution to the problem, and develop a plan for implementation. These briefs serve as a foundation for the student's master's technical report.
Repeat rules: May be repeated for credit. 15 total credits. 5 total completions.
Grading status: Letter grade.

ENVR 991. Research in Environmental Sciences and Engineering. 1-9 Credits.
Consultation with the faculty and approval of subject and proposed program required. Permission of the instructor. May be repeated. Hours and credits to be arranged.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ENVR 992. Master's Technical Report. 3 Credits.
The technical report requirement for M.S.P.H., M.P.H., and M.S.E.E. candidates is satisfied by the extensive study of a problem in environmental sciences and engineering.
Repeat rules: May be repeated for credit.

ENVR 993. Master's Research and Thesis. 3 Credits.

ENVR 994. Doctoral Research and Dissertation. 3 Credits.

Master of Public Health (M.P.H.) Environmental Health Solutions Concentration Description

The environments in which we live, work, and play invariably affect public health. In fact, environmental exposures – most of which can be prevented – account for nearly one quarter of all diseases worldwide. The Environmental Health Solutions concentration (https://sph.unc.edu/resource-pages/master-of-public-health-2/environmental-health-solutions-concentration) is designed to equip future public health professionals with the skills and know-how to predict and identify environmental problems and mitigate their impacts on human health

Requirements

Requirements for the **M.P.H.** degree in the **Environmental Health Solutions** concentration

Code	Title	Hours
M.P.H. Integrated Core		
SPHG 711	Data Analysis for Public Health Fall 1	2
SPHG 712	Methods and Measures for Public Health Practice Fall 1	2
SPHG 713	Understanding Public Health Issues Fall 1	2
SPHG 721	Conceptualizing Public Health Solutions Spring 1	2
SPHG 722	Developing, Implementing, and Evaluating Public Health Solutions Spring 1	4
M.P.H. Concentration		
ENVR 430	Health Effects of Environmental Agents Fall 1	3
ENVR 500	Environmental Processes, Exposure, and Risk Assessment Fall 1	3
ENVR 580	Policy Design for Environmental Health Solutions Spring 1	3
Graduate-level ENVR "Selective" course in air, soil, water, etc.		3
Graduate-level ENVR "Selective" course in air, soil, water, etc.		3
M.P.H. Practicum		
SPHG 701	MPH Practicum Preparation Spring 1	2
Practicum: 200 minimum hours Summer 1		
SPHG 702	MPH Practicum Reflection Fall 2	1
M.P.H. Electives		
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
M.P.H. Culminating Experience		
ENVR 992	Master's Technical Report Spring 2	3
Total Hours		42

Competencies

Students will develop the following **Environmental Health Solutions competencies**, building on the foundational public health knowledge they attain in the Gillings M.P.H. Integrated Core courses.

EHS01.	Weigh the scientific bases of hazard identification, exposure, and health risk assessment to support environmental management and policy.

EHS02.	Identify and evaluate the relationships between sources of environmental contaminants and processes that affect the movement, transformations, exposure pathways, and health effects of contaminants in environmental systems.
EHS03.	Describe and critically evaluate the rational for and approaches used to measure and model properties of environmental/human systems.
EHS04.	Evaluate effective actions or interventions that improve environmental health outcomes, and be able to compare and assess programs, policies, engineering solutions, and/or other approaches to achieve these outcomes.
EHS05.	Examine and critique ethical and legal dimensions of public health and environmental interventions on individuals and communities.

Admissions

Please visit Applying to the Gillings School (https://sph.unc.edu/students/how-to-apply) first for details and information. Application to the residential M.P.H. is a two-step process. Please apply separately to (1) SOPHAS and (2) UNC–Chapel Hill (via the Graduate School application). Visit https://gradschool.sites.unc.edu/master-of-public-health/ for more details. If you are interested in the online M.P.H., please visit the M.P.H.@UNC (https://onlinemph.unc.edu) Web site and fill out an inquiry form.

Practicum

This 200 (minimum) hour planned, mentored, and evaluated work experience (paid or unpaid) gives students the real-world opportunity to integrate and apply knowledge, skills, and values from Year One of their Gillings M.P.H. training in a professional public health setting such as a nonprofit organization, hospital, local or state health department, or for-profit firm (public or private sectors). Please visit the M.P.H. Practicum Web site (https://sph.unc.edu/resource-pages/master-of-public-health-2/mph-practicum) for additional information. In order to meet graduation requirements, a Gillings M.P.H. practicum must:

1. Occur after a student has completed the Gillings M.P.H. Core courses, the M.P.H. practicum preparation course (SPHG 701), and at least one concentration-required course from the student's declared concentration. In extenuating circumstances and with the approval from the student's declared concentration, some exceptions may apply.
2. Yield a least two student-generated products, produced in the practicum setting for the practicum setting, that allow for attainment of at least three (CEPH) M.P.H. Foundational and two concentration-specific competencies (Appendix A). In extenuating circumstances and with the approval from the concentration, students can petition to substitute up to two CEPH Foundational competencies for the concentration-specific competencies.
3. Be mentored by a supervisor (preceptor) with an advanced degree in public health or equivalent experience with expertise in the practicum project area.
4. Comprise a *minimum* of 200 hours (equivalent to five weeks of full-time work) in a location approved for student travel (UNC Travel Policy (https://global.unc.edu/files/2018/02/UNC-Travel-Policy-Final.pdf)), and the student must complete *UNC Gillings International Pre-Departure Travel Requirements* prior to travel.

Culminating Experience

Each student completes a 3-credit culminating experience and produces a high-quality written product that is completed near the end of the program of study. This culminating experience ideally is delivered in a manner that is useful to external stakeholders, such as nonprofit or governmental organizations, and could take the form of a course-based capstone project or master's paper, but will be tailored to the concentration a student chooses.

Academic Advising and Faculty Mentoring

We are committed to providing quality academic advising and mentoring for all students. We ensure that M.P.H. students get the guidance they need with several components: 1) an orientation program that provides an overview of the types and sources of M.P.H. advising; 2) cohort advising sessions to disseminate information that is relevant to course planning and registration; 3) faculty mentoring that provides students with tailored support for their academic, professional, personal development, and practicum support.

M.P.H. students will complete a 2-semester, 12-credit-hour **Integrated Core** taught by an interdisciplinary team of instructors. The 6-credit first semester (fall) focuses on understanding public health issues, and the second semester (6-credit spring courses) focuses on creating solutions to those issues.

All M.P.H. students take **COMPASS (Core Online Modules to Promote and Accelerate Student Success).** These brief, self-paced online modules are open for students prior to their first academic year. Students can complete any and all parts of COMPASS up to and including the first week of class.

Electives: For the remaining 9 credits, students are free to choose elective courses from any of the 12 concentration areas listed above or from other courses in the Gillings School.

For information on policies and procedures, please visit the Gillings School Student Handbook (https://sph.unc.edu/students/gillings-school-student-handbook) Web site.

DEPARTMENT OF EPIDEMIOLOGY (GRAD)

Contact Information

Department of Epidemiology
Visit Program Website (http://sph.unc.edu/epid)
2101 McGavran-Greenberg Hall
919-966-7430

Til Stürmer, Chair

The Department of Epidemiology, which is housed in the Gillings School of Global Public Health, is one of the world's leading academic departments in epidemiology. Renowned faculty members provide students with training in effective research practices and methods. The department conducts innovative research and provides classroom and real-world educational interdisciplinary opportunities that emphasize the integration of substantive area knowledge and cutting-edge epidemiologic methods. It also works with students to apply their epidemiology research to a variety of health problems in North Carolina and across the world. Research resources include diverse studies of disease endpoints (cancer, cardiovascular, infectious disease, injury, and reproductive/perinatal/pediatric epidemiology) and factors and methods that impact patterns of disease and population health (environmental, occupational, pharmacoepidemiology, genetic, social, and methods).

Degrees and Certificates

The Department of Epidemiology offers master's degrees and a doctoral degree, and cosponsors a certificate. The master's and doctoral programs offer a body of research skills together with the opportunity to work closely with faculty on key research questions, and to share the challenge and rewards that epidemiology provides.

Master of Public Health (M.P.H.)

The M.P.H. is a terminal degree program for physicians and other doctoral-level professionals. The M.P.H. degree requires a minimum of 42 semester hours of credit, and is designed as a two-year program.

Master of Public Health Program (M.P.H.) with a Veterinary Epidemiology Concentration

The Department of Epidemiology, in collaboration with the North Carolina State University College of Veterinary Medicine, jointly sponsors a targeted curriculum opportunity for veterinarians interested in careers in public health. This two-year program requires a minimum of 56 total credit hours. The unique program is designed to provide graduate training for veterinarians interested in pursuing public health service-oriented careers with local, state, federal, and international public health and animal health agencies.

Master of Science in Clinical Research (M.S.C.R.)

The M.S.C.R. program is an interdisciplinary research degree program housed within the Department of Epidemiology in the Gillings School of Global Public Health but jointly sponsored by the TraCS (http://tracs.unc.edu) (North Carolina Translational and Clinical Sciences) Institute in the UNC School of Medicine. The program is designed to develop the skills necessary for a successful career as a principal investigator and collaborator in clinical/translational research. The M.S.C.R. requires a minimum of 36 semester hours of credit and is designed as a two-year program with at least two full semesters in residence. The program may be completed on either a part-time or full-time basis.

Doctor of Philosophy (Ph.D.)

The doctor of philosophy (Ph.D.) in epidemiology prepares students for careers in research and teaching, often at a university, federal, or state agency, or private research institution. Students develop research and teaching skills in epidemiology through coursework and practice opportunities. The doctoral program includes coursework, preliminary doctoral examinations, and doctoral research. Students who have already earned a relevant master's or professional degree (M.D., D.D.S., D.V.M., etc.) typically complete the doctorate in three to five years after admission.

Students who have not earned a relevant master's or professional degree may still be admitted to the doctoral program; however, these students are required to complete the master of science in public health (M.S.P.H.) in the Department of Epidemiology before they begin their doctoral coursework. This may add one to two years to the program. These applicants should still apply directly to the Ph.D. program.

Certificate in Field Epidemiology

The Certificate in Field Epidemiology (http://sph.unc.edu/phlp/phlp-degrees-and-certificates/certificate-in-field-epidemiology) is cosponsored by the Department of Epidemiology and the Public Health Leadership Program. The program is specifically designed for working practitioners and emphasizes practical, applied skills.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Distinguished Professors

Adaora Adimora (241), Infectious Disease Epidemiology
Myron "Mike" Cohen, Infectious Disease Epidemiology
Michael Emch (234), Spatial Epidemiology, Medical Geography, Infectious Diseases, Neighborhoods and Health
Gerardo Heiss (41), Cardiovascular Epidemiology
David M. Margolis (220), Infectious Disease Epidemiology
Andrew F. Olshan (147), Cancer Epidemiology, Reproductive/Perinatal Epidemiology
Robert S. Sandler (73), Cancer Epidemiology
H. June Stevens (172), Nutritional Epidemiology, Obesity Epidemiology
Til Stürmer (224), Pharmacoepidemiology, Methodology

Professors

Allison Aiello (240), Social Epidemiology
Ralph S. Baric (142), Public Health Virology, Molecular Virology
Maurice Alan Brookhart (228), Pharmacoepidemiology, Methodology
Stephen R. Cole (225), Methodology, Infectious Disease Epidemiology
Julie Daniels (206), Environmental Epidemiology, Reproductive/Perinatal/Pediatric Epidemiology
Stephanie Engel (231), Reproductive/Perinatal Epidemiology, Environmental Epidemiology
Marilie D. Gammon (195), Cancer Epidemiology
Stephen W. Marshall (199), Injury Epidemiology, Methodology
Steven R. Meshnick (200), Infectious Disease Epidemiology
Kari North (205), Cardiovascular Epidemiology, Genetic Epidemiology
Audrey Pettifor (215), Infectious Disease Epidemiology
Wayne D. Rosamond (162), Cardiovascular Epidemiology
Jennifer S. Smith (212), Infectious Disease Epidemiology, Cancer Epidemiology

Melissa A. Troester (226), Cancer Epidemiology
Annelies Van Rie (202), Infectious Disease Epidemiology
David J. Weber (96), Infectious Disease Epidemiology

Associate Professors

Christy L. Avery (233), Cardiovascular Epidemiology, Genetic Epidemiology
Larry Engel (232), Environmental Epidemiology, Cancer Epidemiology
Emily Gower (243), Ocular Epidemiology, Infectious Disease Epidemiology
Joanna "Asia" Maselko (242), Social Epidemiology, Mental Health Epidemiology
Brian W. Pence (236), Infectious Disease Epidemiology, Mental Health Epidemiology, Implementation Science Research, Quantitative Epidemiologic Methods
Charles L. Poole (193), Methodology
David B. Richardson (213), Environmental Epidemiology, Occupational Epidemiology
Whitney R. Robinson (229), Social Epidemiology, Cancer Epidemiology, Nutrition, Methodology
Victor J. Schoenbach (64), Behavioral Epidemiology, Infectious Disease Epidemiology (Primarily STDs), Cancer Control (Primarily Smoking Cessation)
Lola V. Stamm (145), Public Health Bacteriology, Molecular Cloning, Pathogenics of Infectious Disease
James C. Thomas (127), Infectious Disease Epidemiology, Social Epidemiology
Daniel J. Westreich (235), Infectious Disease Epidemiology, Methodology, Reproductive and Perinatal Epidemiology, Pharmacoepidemiology

Assistant Professors

Yvonne Golightly (244), Injury Epidemiology, Osteoarthritis
Jennifer L. Lund (238), Cancer Survivorship and Outcomes, Pharmacoepidemiology, Healthcare Database Utilization
Hazel B. Nichols (239), Cancer Epidemiology, Women's Health
Kimberly A. Powers (237), Infectious Disease Epidemiology, Global Health

Clinical Associate Professors

Lorraine Alexander, Public Health Preparedness, Distance Education
Karin Yeatts, Environmental Epidemiology

Clinical Assistant Professor

Patricia Basta, Cancer Epidemiology

Research Professors

John Baron, Cancer Etiology and Prevention, Clinical Epidemiology
Kelly R. Evenson (209), Cardiovascular Epidemiology, Physical Activity

Research Associate Professors

Sylvia Becker-Dreps, Evaluation of Immunization Programs, Rotavirus Vaccines, Pneumococcal Vaccines
Jeannette Bensen, Cancer Epidemiology, Molecular Epidemiology
Kathleen C. Dorsey, Cancer Epidemiology
Nora Franceschini, Cardiovascular Epidemiology
Michele Jönsson Funk (216), Infectious Disease Epidemiology, Pharmacoepidemiology
Sonia Napravnik (223), Infectious Disease Epidemiology
Amy Sims, Infectious Disease Epidemiology
Eric A. Whitsel (221), Cardiovascular Epidemiology

Research Assistant Professors

Christopher Baggett, Chronic Disease Epidemiology
Tania Desrosiers, Reproductive/Perinatal Epidemiology; Birth Defects
Andrew Edmonds, Infectious Disease Epidemiology
Jess Edwards, Infectious Disease Epidemiology, Methodology, Global Health
Mariaelisa Graff, Genetic Epidemiology
Rachel Graham, Public Health Virology, Molecular Virology
Lisa Gralinsky, Public Health Virology, Infectious Disease Epidemiology
Alex Keil, Environmental Epidemiology, Occupational Epidemiology
Anna Kucharska-Newton, Cardiovascular Epidemiology
Laura R. Loehr (227), Cardiovascular Epidemiology, Clinical Epidemiology
Shabbar Ranpurwala, Injury Epidemiology
Timothy Sheahan, Public Health Virology, Infectious Disease Epidemiology, Genetic Epidemiology
Xuezheng "Amy" Sun, Cancer Epidemiology, Molecular Epidemiology, Genetic Epidemiology
Anissa Vines, Social Epidemiology, Health Care Epidemiology
Sharon S. Weir, Infectious Disease Epidemiology
Kristin Young, Genetic Epidemiology, Health Disparities, Obesity Epidemiology

Clinical Professors

Timothy S. Carey (138), Clinical Epidemiology
David F. Ransohoff (160), Health Care Epidemiology
Ross Simpson Jr., Cardiovascular Epidemiology, Clinical Epidemiology
Ronald Strauss, Dental Epidemiology, Social Impacts

Clinical Associate Professor

Mary "Bonnie" Rogers (187), Occupational Epidemiology

Adjunct Professors

Naomar Almeida-Filho, Psychosocial Epidemiology
Donna D. Baird (104), Reproductive Epidemiology
James D. Beck (167), Dental Epidemiology
Douglas Bell, Cancer Epidemiology
Dan German Blazer (108), Psychosocial and Aging Epidemiology
Donald Budenz
Gregory L. Burke, Cardiovascular Epidemiology
Leigh Callahan, Chronic Disease Epidemiology, Health Care Epidemiology
Dennis A. Clements (152), Infectious Disease Epidemiology
Joseph Cook, Infectious Disease Epidemiology, Parasitology
Joan Cornoni-Huntley (04), Aging, Physical, Cognitive, and Social Functioning
John Dement, Environmental Epidemiology, Occupational Epidemiology
Nancy Dreyer, Pharmacoepidemiology
Jeffrey Engel, Infectious Disease Epidemiology
Joseph Eron Jr., Infectious Disease Epidemiology
Paul J. Feldblum (186), Infectious Disease Epidemiology
Robert Fletcher (45), Health Care Epidemiology
Suzanne Fletcher (46), Health Care Epidemiology
Bradley Gaynes, Psychiatric Epidemiology
Paul A. Godley (181), Cancer Epidemiology
Laura Hanson, Clinical Epidemiology, Geriatrics
Katherine E. Hartmann (196), Reproductive Epidemiology, Women's Health
William Jenkins, Social Epidemiology
Joanne Jordan, Chronic Disease Epidemiology
Jay Kaufman, Methodology, Social Epidemiology
Stephen Kritchevsky, Aging Epidemiology

Peter Leone, Infectious Disease Epidemiology
Jay Levine, Veterinary Epidemiology
Stephanie London, Cancer Epidemiology
Matthew Longnecker, Environmental and Occupational Epidemiology
Dana P. Loomis, Environmental and Occupational Epidemiology
Timothy Mastro, Infectious Disease Epidemiology
Melinda S. Meade (58), Medical Geography
Pauline Mendola, Environmental Epidemiology, Reproductive Epidemiology
Kenneth A. Mundt, Occupational Epidemiology
Warren P. Newton, Health Care Epidemiology
David Peden, Environmental and Occupational Epidemiology
Miquel Porta, Cancer Epidemiology, Clinical Epidemiology, Pharmacoepidemiology
Dale Sandler (90), Environmental Epidemiology
Joellen M. Schildkraut (126), Cancer Epidemiology
Nicholas Shaheen, Health Care Epidemiology
Mark Sherman
Ilene C. Siegler (148), Aging
Gary Slade, Oral Epidemiology
Betsy Sleath, Pharmacoepidemiology, Outcomes Research
Jeffrey S. A. Stringer, Global Women's Health, HIV/AIDS in Women and Child Health
Jack A. Taylor, Environmental and Occupational Epidemiology
John Thorp Jr., Reproductive Epidemiology
Hugh H. Tilson (87), Pharmacoepidemiology
Clarice Weinberg, Environmental and Reproductive Epidemiology
Allen J. Wilcox (61), Reproductive Epidemiology

Adjunct Associate Professors

Elizabeth B. Andrews (140), Pharmacoepidemiology
Wendy Brewster, Women's Health
Patricia Chang, Cardiovascular Epidemiology
Benjamin H. Chi, Clinical Epidemiology, Global Health, Reproductive Health
Thomas B. Cole, Public Health, Violence, Medical Editing
Martin Crane, Chronic Disease Epidemiology, Reproductive Epidemiology
Evan Dellon, Health Care Epidemiology
Kimon Divaris, Oral Epidemiology
Nancy Dole, Reproductive Epidemiology
Bruce Duncan, Cardiovascular Epidemiology
Sara Ephross, Chronic Disease Epidemiology
Cynthia Girman, Pharmacoepidemiology
Debra E. Irwin (176), Cancer Epidemiology, Reproductive Epidemiology
Michael Kappelman, Clinical Epidemiology, Pharmacoepidemiology
Duanping Liao (189), Cardiovascular Epidemiology
Pia MacDonald, Applied Epidemiology
Prema Menezes, Infectious Disease Epidemiology
Patricia Moorman, Cancer Epidemiology
Lucas Neas, Environmental Epidemiology
Matthew E. Nielsen, Clinical Epidemiology and Health Services, Cancer Outcomes
Maria Schmidt, Chronic Disease Epidemiology
Arlene Sena-Soberano, Infectious Disease Epidemiology
Paul E. Stang (163), Chronic Disease Epidemiology
Anthony J. Viera, Hypertension, Cardiovascular Disease Prevention
Emmanuel Walter, Infectious Disease Epidemiology
Suzanne West (207), Health Care Epidemiology, Pharmacoepidemiology
Alice D. White (117), Cardiovascular Epidemiology
David Wohl, Infectious Disease Epidemiology

Adjunct Assistant Professors

Jane H. Brice, Clinical Epidemiology, Cardiovascular Epidemiology
Lori Carter Edwards (192), Cardiovascular Epidemiology
Remy Coeytaux, Health Care Epidemiology
Kourtney Davis, Pharmacoepidemiology
Mohamed El Hag Ahmed, Environmental/Occupational Epidemiology, Injury Epidemiology
Alan Ellis
Aaron Fleischauer, Applied Epidemiology, Surveillance, Preparedness and Response
Satish Gopal
Louise Henderson, Health Services Research, Cancer Epidemiology
Jane Hoppin, Environmental Epidemiology
Jennifer A. Horney, Applied Epidemiology
Jonathan Juliano, Molecular Epidemiology and Genetics of Malaria
Thomas Luben, Environmental Epidemiology, Adverse Reproductive Outcomes
Christina Mack, Pharmacoepidemiology, Comparative Effectiveness
William C. Maier, Pharmacoepidemiology
Edmond Malka
Ann M. McNeill, Cardiovascular Epidemiology
Lynne Messer, Social Epidemiology
David Miller, Pharmacoepidemiology, Molecular Epidemiology
Victoria Mobley
Keri Monda, Genetics, Obesity Epidemiology
Sarah Nyante
Scott Proescholdbell, Injury Epidemiology
Williams Saunders, Psychosocial Epidemiology
Pamela Schwingl, Chronic Disease Epidemiology, Reproductive Epidemiology
Sumitra Shantakumar, Pharmacoepidemiology
Markus Steiner, Methodology
Steve M. Taylor, Malaria, Tropical Disease Epidemiology, Hemoglobin Disorders
Vani Vannappagari, Infectious Disease Epidemiology
Emily Vavalle, Infectious Disease Epidemiology
Andres Villaveces, Injury Epidemiology
Catherine Vladutiu, Perinatal Epidemiology, Injury Epidemiology, Cardiovascular Epidemiology
Timothy Wade, Environmental Epidemiology
Rachel E. Williams, Health Care Epidemiology
Christopher Woods, Infectious Disease Epidemiology
Jose Zevallos, Cancer Epidemiology

Adjunct Instructor

Amy Ising, Public Health Informatics, Public Health Surveillance, Syndromic Surveillance

Professors Emeriti

Wilfrida Behets
Barbara S. Hulka
Michel A. Ibrahim
Berton H. Kaplan
J. Richard Seed
Carl M. Shy

EPID

Advanced Undergraduate and Graduate-level Courses

EPID 600. Principles of Epidemiology for Public Health. 3 Credits.
An introductory course that considers the meaning, scope, and applications of epidemiology to public health practice and the uses of vital statistics data in the scientific appraisal of community health. One lecture and two lab hours per week.
Grading status: Letter grade.

EPID 625. Injury as a Public Health Problem. 3 Credits.
This course examines unintentional injuries from a public health perspective. The course covers core concepts in injury prevention and control, including the epidemiology of unintentional injury, prevention strategies, behavioral models, child and adolescent injury, messaging framing, the Haddon matrix, and injury surveillance.
Requisites: Corequisite, EPID 600.
Grading status: Letter grade
Same as: MHCH 625, HBEH 625.

EPID 626. Violence as a Public Health Problem. 3 Credits.
This course covers core concepts in violence prevention and control, including the epidemiology of violence, prevention strategies for inter-personal and intra-personal violence, behavioral models that describe power structures that reinforce personal and societal factors affecting self-harm and violence towards others, and violence directed towards children and adolescents.
Requisites: Prerequisite, EPID 625.
Grading status: Letter grade
Same as: MHCH 626, HBEH 626.

EPID 695. Research in Epidemiology. 1-3 Credits.
Permission of the instructor. A course for undergraduate students who wish to conduct research as part of an ongoing epidemiology project or as an independent activity.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 3 total completions.
Grading status: Letter grade.

EPID 696. Problems in Epidemiology. 1-3 Credits.
A course for undergraduate students who wish to make an intensive study of some special problems in epidemiology.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 3 total completions.
Grading status: Letter grade.

Graduate-level Courses

EPID 700. SAS and Data Management. 3 Credits.
An introduction to statistical analysis, programming, and data management, using the SAS programming language. Two lecture hours and two lab hours per week.
Grading status: Letter grade.

EPID 705. Introduction to Deductive and Probability Logic in Epidemiology. 2 Credits.
Permission of the instructor for nonmajors. Covers properties of logical relations, truth tables and Euler diagrams, valid and fallacious arguments, cognitive heuristics and biases, interpretations of probability, the probability calculus, Bayes' theorem, binomial and normal distributions, applications of probability logic and probabilistic fallacies, all in an epidemiologic context.
Grading status: Letter grade.

EPID 710. Fundamentals of Epidemiology. 5 Credits.
Permission required for nonmajors. An intensive introduction to epidemiological concepts and methods for students intending to engage in, collaborate in, or interpret the results of epidemiologic studies. Some familiarity with biomedical concepts may be needed. An alternate to EPID 600 for satisfying the SPH core requirements. Three lecture and two seminar hours a week.
Requisites: Corequisite, BIOS 600.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EPID 711. Clinical Measurement and Evaluation. 3 Credits.
Focuses on work, workplace exposures and hazards, and their effect on health. Interdisciplinary approaches to risk identification, reduction, and communication will be emphasized within regulatory and ethical contexts.
Grading status: Letter grade
Same as: PUBH 760.

EPID 715. Theory and Quantitative Methods in Epidemiology. 4 Credits.
Required preparation, competence in SAS. An in-depth treatment of basic concepts and skills in epidemiologic research, including problem conceptualization, study design, research conduct, data analysis, and interpretation. Four lecture hours per week.
Requisites: Prerequisites, EPID 705, EPID 710 or 711; Corequisite, BIOS 545; Permission of the instructor required for nonmajors.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EPID 716. Epidemiologic Data Analysis. 3 Credits.
Required preparation, documented SAS proficiency. This course is a combined lecture/lab format where students get hands-on experience in the analysis and interpretation of data from cohort and case-control studies. Students may take the SAS exemption exam in lieu of taking EPID 700 or BIOS 511.
Requisites: Prerequisite, EPID 710, EPID 711, or SPHG 712. Pre- or corequisite, EPID 700 or BIOS 511.
Grading status: Letter grade.

EPID 718. Analytic Methods in Observational Epidemiology. 3 Credits.
Required preparation, demonstrated experience with computer-based data analysis. Concepts and applications, including logistic regression, binomial regression, model building strategy, additive and multiplicative interaction, and graphical exploration. Includes computer-based experience with real data. Two lecture and one lab hours per week.
Requisites: Prerequisites, EPID 715 and EPID 716; Permission of the instructor for nonmajors.
Grading status: Letter grade.

EPID 719. Readings in Epidemiologic Methods. 1 Credit.
EPID 722 (spring). A discussion in journal-club format of readings in general epidemiologic methods, from problem conceptualization to application of results.
Requisites: Co-requisite, EPID 718 (fall);
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EPID 722. Epidemiologic Analysis of Time-to-Event Data. 4 Credits.
Required preparation, SAS software expertise. Course covers epidemiologic analysis of time-to-event data and emphasizes weighing threats to the accuracy of inferences. Class time is spent discussing weekly readings and homeworks.
Requisites: Prerequisite, EPID 718.
Grading status: Letter grade.

EPID 725. Research Planning Workshop. 1 Credit.
This course is designed to guide students through the initial stage of formulating an epidemiologic research topic and plan, leading towards the development of a full research proposal.Open only EPID majors in 2nd year (or greater) of the PhD program or 3rd year (or greater) of the MSPH/PhD program.
Requisites: Prerequisite, EPID 715 and 716; corequisite, EPID 718.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

EPID 726. Epidemiologic Research Methods. 3 Credits.
Minimum second- year standing in doctoral program or permission of the instructor. Majors only. A second-level course in the design and conduct of epidemiologic research. Each student will comprehensively address the conceptual and practical aspects of developing a high-quality, detailed research proposal.
Requisites: Prerequisites, EPID 715 and 725.
Grading status: Letter grade.

EPID 731. Systematic Review and Meta-Analysis. 1 Credit.
This seminar provides training in systematic review and meta-analysis. Topics include problem definition, literature search, extraction of results and study characteristics, publication bias and funnel plot analysis, analysis overall heterogeneity, and stratified and meta-regression analysis of study and population characteristics.
Grading status: Letter grade.

EPID 733. Clinical Trials in Epidemiology. 3 Credits.
Required preparation, introductory epidemiology and biostatistics. Systematic overview of principles in design, implementation, and analysis of clinical trials. Emphasis on applications in chronic disease epidemiology. In-depth discussion of case examples from cardiovascular disease epidemiology emphasized. Three lecture hours a week.
Grading status: Letter grade.

EPID 735. Cardiovascular Epidemiology. 3 Credits.
Review of cardiovascular health and disease in populations and their population determinants. Topics include epidemiologic methods, risk factors, strategies for prevention, and a student research project. Three lecture hours per week
Grading status: Letter grade.

EPID 738A. Methods and Applications of Cardiovascular Disease Surveillance. 1 Credit.
This course helps students gain experience critiquing and interpreting national and international cardiovascular disease (CVD) surveillance programs, evaluate recommendations for future CVD surveillance research and policy, and to explore CVD surveillance data sources with hands-on experience with practical aspects of study conduct.
Requisites: Prerequisite, EPID 735.
Grading status: Letter grade.

EPID 738B. Epidemiology of Stroke. 1 Credit.
This course helps students become familiar with physiologic and pathologic aspects of cerebrovascular diseases, provides opportunity to explore research findings regarding major risk factors for stroke and evidence for prevention strategies, and offers a guided experience in critiquing, synthesizing, and communicating stroke related research findings.
Requisites: Prerequisite, EPID 735.
Grading status: Letter grade.

EPID 738C. Contemporary Issues in Hypertension Research. 1 Credit.
In this seminar, we examine several contemporary issues related to hypertension research, particularly pertaining to measurement of blood pressure. Each session will begin with an overview, likely didactic, followed by more in-depth discussion of the topics.
Requisites: Prerequisite, EPID 735.
Grading status: Letter grade.

EPID 742. Biomarkers in Population-Based Research. 2 Credits.
This course surveys the major issues relevant to the application of biomarkers in epidemiological research, including the logistical hurdles in biospecimen collection and storage, assessments of biomarker quality, analytic issues, and the interpretation of quantitative estimates.
Grading status: Letter grade.

EPID 743. Genetic Epidemiology: Methods and Applications. 3 Credits.
Concepts and methods of genetic epidemiology relevant to the study of complex human diseases, including segregation analysis, linkage analysis, and gene-environment interaction. Includes whole genome approaches, as well as nonhuman systems. Three lecture hours a week.
Requisites: Prerequisites, BIOS 545 and EPID 715; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

EPID 750. Fundamentals of Public Health Surveillance. 3 Credits.
This course provides the conceptual foundations and practical skills for designing and implementing surveillance systems, for using surveillance data for the conduct and evaluation of public health programs and research.
Grading status: Letter grade.

EPID 751. Emerging and Re-Emerging Infectious Diseases. 3 Credits.
Basic principles of infectious diseases, focusing on emerging and re-emerging disease agents that affect public health. Includes an introduction to the biology of viruses, bacteria, and eukaryotic parasites.
Grading status: Letter grade.

EPID 753. Prevention and Control of Infectious Diseases at the Level of the Community. 3 Credits.
Primary focus at county/state level; surveillance/control of acute infectious diseases; public health vs. individual rights. Bridging epidemiological concepts with community activities and real world health department issues. Three lecture hours per week.
Grading status: Letter grade.

EPID 754. Advanced Methods in Infectious Disease Epidemiology. 3 Credits.
This course covers theories, concepts, study designs, and analytical methods of particular importance in studying infectious outcomes. Teaching methods include lectures, hands-on computer practicals, article discussions, and written assignments.
Requisites: Prerequisites, EPID 715 and 716.
Grading status: Letter grade.

EPID 755. Introduction to Infectious Disease Epidemiology. 3 Credits.
Permission required for non-majors. Objectives of the course are to: (1) understand the general principles of infectious disease epidemiology; (2) understand surveillance, prevention and control of infectious diseases; and (3) apply principles to specific infectious diseases. Course is part lecture and part group projects/discussion period per week.
Grading status: Letter grade.

EPID 756. Control of Infectious Diseases in Developing Countries. 3 Credits.
Epidemiology and control of selected infectious diseases prevalent in developing countries. Course involves lectures, critical discussions of published articles, and a final group project. Three lecture hours per week.
Requisites: Prerequisite, EPID 600.
Grading status: Letter grade.

EPID 757. Epidemiology of HIV/AIDS in Developing Countries. 3 Credits.
This course examines the epidemiology of AIDS from an international perspective. It considers the AIDS pandemic in a broad epidemiologic perspective, including key aspects of basic, clinical, and social science. Three lecture hours per week.
Requisites: Prerequisite, EPID 600.
Grading status: Letter grade.

EPID 758. Methods and Principles of Applied Infectious Disease Epidemiology. 3 Credits.
This course will cover the interaction between an infectious agent, host, and environment; modes and dynamics of transmission; the role of immunity in infectious disease epidemiology; and disease elimination strategies. Three lecture hours per week.
Requisites: Prerequisite, EPID 600.
Grading status: Letter grade.

EPID 759. Methods in Field Epidemiology. 3 Credits.
Course will focus on epidemiological methods required to investigate urgent public health problems. Course covers the skills and tools needed to conduct outbreak investigations and communicate findings to the public. Three lecture hours per week.
Grading status: Letter grade.

EPID 760. Vaccine Epidemiology. 3 Credits.
An overview of vaccinology principles, mechanisms of action, and herd protection, and statistical considerations. Students will obtain understanding of how vaccines are produced by industry, undergo preclinical evaluation, and evaluated for efficacy in clinical trials.
Grading status: Letter grade.

EPID 764. Hospital Epidemiology. 1-2 Credits.
Comprehensive seminar in hospital infection control. Topics include issues in employee health, surveillance, outbreak investigation, environmental sampling, and policy formation. May be repeated for credit. Two to four seminar hours.
Requisites: Prerequisite, EPID 710; Permission of the instructor required.
Grading status: Letter grade.

EPID 765. Methods and Issues in Pharmacoepidemiology. 3 Credits.
Required preparation, introductory-level epidemiology and biostatistics. Application of the epidemiologic knowledge, methodology, and reasoning to the study of the effects (beneficial and adverse) and uses of drugs in human populations.
Grading status: Letter grade.

EPID 766. Epidemiologic Research with Healthcare Databases. 3 Credits.
Required preparation, competency in data management with SAS (BIOS 511, EPID 700, or equivalent). Learn how healthcare utilization data are generated and use databases to identify study populations and conduct epidemiologic analysis of the utilization and comparative effectiveness/safety of prescription drugs and healthcare services.
Requisites: Prerequisite, EPID 600.
Grading status: Letter grade.

EPID 770. Cancer Epidemiology and Pathogenesis. 3 Credits.
Equivalent experience for students lacking EPID 710. Undergraduate major or strong preparation in the biological sciences required. Permission of the instructor for nonmajors. Emphasis on integration of epidemiologic data with laboratory and clinical research findings. Issues in epidemiologic research design, analysis, and interpretation are presented within the context of substantive epidemiology. Three lecture hours a week.
Requisites: Prerequisites, BIOS 600 and EPID 710.
Grading status: Letter grade.

EPID 771. Cancer Epidemiology: Survivorship and Outcomes. 3 Credits.
Students will evaluate the strengths and weaknesses of data sources common to cancer survivorship and outcomes studies, focusing on epidemiologic study designs. The course addresses cancer detection, treatment strategies, medical surveillance, and personal behaviors as determinants for prognosis, late effects, and the long-term health of cancer survivors.
Requisites: Prerequisite, EPID 710 or 711.
Grading status: Letter grade.

EPID 772. Cancer Prevention and Control Seminar. 3 Credits.
An interdisciplinary overview of cancer prevention and control. Emphasis on projects and activities from perspectives of epidemiology, health behavior and education, and health policy and management. Appropriate research design and methodologies are covered.
Grading status: Letter grade
Same as: HPM 765, HBEH 765.

EPID 775. Advanced Cancer Epidemiology: Classic and Contemporary Controversies in Cancer Causation. 2 Credits.
Readings and discussions on classic and contemporary controversies in cancer causation. Two seminar hours per week.
Requisites: Prerequisites, EPID 715, 718, and 770 or 771; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

EPID 780. Occupational Epidemiology. 3 Credits.
Required preparation, introductory epidemiology and biostatistics. This course provides a background in the epidemiology of work-related illness and injury and the application of epidemiologic concepts and methods in protecting workers' health and safety.
Grading status: Letter grade.

EPID 785. Environmental Epidemiology. 3 Credits.
Epidemiologic ideas and methods applied to evaluation and control of human health consequences of environmental hazards. Pollution of environmental media and global change are considered from a human-ecological perspective, with local and international examples. Three lecture hours per week.
Requisites: Prerequisites, EPID 710 and BIOS 600.
Grading status: Letter grade.

EPID 786. Community-Driven Epidemiology and Environmental Justice. 2 Credits.
Principles for conducting research within communities unduly burdened by environmental health threats are presented. Topics include research ethics, community presentations, study design and implementation, and student research projects.
Grading status: Letter grade.

EPID 787. Advanced Environmental Epidemiology. 2 Credits.
Discussion of the epidemiology of environmentally-related disease and the application of epidemiologic concepts/methods to protecting public health from environmental hazards. Examples illustrate discussions regarding exposure assessment, dynamic nature of environments, regulation/assessment of environmental hazards, and methods used for environmental hazard identification and risk assessments.
Requisites: Prerequisite, EPID 785.
Grading status: Letter grade.

EPID 790. Intervention Epidemiology. 2 Credits.
Epidemiologic methods for evaluating interventions, primarily in infectious disease epidemiology and injury epidemiology. Covers randomized designs, such as community trials, and evaluation of non-randomized interventions, such as policies and laws.
Requisites: Co-requisites, EPID 705 and 710.
Grading status: Letter grade.

EPID 795. Data in Public Health. 3 Credits.
This course provides students with an overview of public health informatics and includes in-depth discussions on informatics approaches used in developing the public health information systems in use today.
Grading status: Letter grade.

EPID 799A. Special Studies in Epidemiology I. 1 Credit.
Experimental course to be offered by faculty to determine the need and demand for the subject. Topics will be chosen by faculty based on current public health issues. One credit option.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 3 total completions.
Grading status: Letter grade.

EPID 799B. Special Studies in Epidemiology II. 2 Credits.
Experimental course to be offered by faculty to determine the need and demand for the subject. Topics will be chosen by faculty based on current public health issues. Two credits option.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 3 total completions.
Grading status: Letter grade.

EPID 799C. Special Studies in Epidemiology III. 3 Credits.
Experimental course to be offered by faculty to determine the need and demand for the subject. Topics will be chosen by faculty based on current public health issues. Three credits option.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

EPID 801. Data Analysis in Oral Epidemiology. 2-3 Credits.
Required preparation, basic knowledge of SAS. Permission of the instructor. Data analysis project in oral epidemiology: data cleanup, file construction, analysis. For three credit hours, student also completes multivariate analysis with linear, logistic regression. Project to result in publishable paper. Two to three seminar hours a week.
Grading status: Letter grade.

EPID 802. Clinical Research Skills I: Basics. 2 Credits.
Includes basic development of research ideas, manuscript writing, manuscript review.
Requisites: Co-requisite, EPID 711 or PUBH 760.
Grading status: Letter grade.

EPID 804. Design of Clinical Research Studies. 4 Credits.
Clinical research majors only. The goals of this course are to develop a strong fundamental understanding of the design of clinical research studies; to understand selection of study populations, exposure and outcome measurement, and choice of appropriate measures; to understand ethical oversight, project management and quality control.
Requisites: Prerequisite, EPID 711.
Grading status: Letter grade.

EPID 805. Clinical Research Skills III: Proposal Development - Part 1. 2 Credits.
This course will address the process for proposal development for clinicians with an emphasis on the initial stages including development of the research questions, specific aims, and significance.
Requisites: Co-requisites, EPID 711 and PUBH 741 or permission of instructor.
Grading status: Letter grade.

EPID 806. Clinical Research Skills IV -- Proposal Development. 2 Credits.
Proposal writing and study implementation skills. Emphasis is given to NIH style proposals for clinical and translational research.
Requisites: Prerequisites, EPID 805, EPID 711, PUBH 741; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

EPID 810. Physical Activity Epidemiology and Public Health. 3 Credits.
This course provides an overview of major issues in physical activity measurements, population distribution, correlates, impacts (physically and economically), and public health recommendations. Interventions, including relevant theories, will be reviewed. Three lecture hours per week.
Requisites: Prerequisite, EPID 600.
Grading status: Letter grade
Same as: NUTR 810.

EPID 813. Nutritional Epidemiology. 3 Credits.
This course introduces basic methods of dietary assessment, reviews various topics in nutrition epidemiology, and teaches the skills needed for critical evaluation of the nutritional epidemiologic literature.
Requisites: Prerequisites, BIOS 600, and EPID 600 or 710.
Grading status: Letter grade
Same as: NUTR 813.

EPID 814. Obesity Epidemiology. 3 Credits.
Examines epidemiology research on the causes, consequences, and prevention of obesity. Emphasis on methodological issues pertinent to obesity research.
Requisites: Prerequisites, BIOS 545, EPID 715, 716 and NUTR 812 or NUTR 813/EPID 813.
Grading status: Letter grade
Same as: NUTR 814.

EPID 818. Analytical Methods in Nutritional Epidemiology. 3 Credits.
Skills and techniques to study how dietary exposures, physical activity, and anthropometric status relate to disease outcomes. Focus is hands-on data analysis using STATA, and interpretation of results from statistical analysis.
Requisites: Prerequisites, BIOS 545, EPID 600 or 710, and NUTR 813.
Grading status: Letter grade
Same as: NUTR 818.

EPID 825. Social Determinants of Health: Theory, Method, and Intervention. 3 Credits.
Discussion and readings will focus on population vs. individual perspectives on health, risk conditions vs. risk factors, concepts of causation, and knowledge development as a historic and social process. Course will also examine macro-level determinants of population health.
Requisites: Prerequisite, EPID 600.
Grading status: Letter grade
Same as: HBEH 802.

EPID 826. Introduction to Social Epidemiology. 2 Credits.
This course provides an overview of key concepts, methods and findings in research on social determinants of population health. Classes will consist of a didactic presentation followed by in-class group work modules and large group summary discussion.
Requisites: Pre- or corequisite, EPID 600.
Grading status: Letter grade.

EPID 827. Social Epidemiology: Design and Interpretation. 2 Credits.
Approaches to social epidemiologic research, with a focus on study design and interpretation of analytic techniques common in social epidemiology. Topics include causal inference for socially patterned exposures, racial equity research, and place effects on health.
Requisites: Prerequisite, EPID 710; corequisite, EPID 715 or 716.
Grading status: Letter grade.

EPID 851. Reproductive and Perinatal Epidemiology. 3 Credits.
Equivalent experience for students lacking the co-requisites. Epidemiology of reproductive and perinatal health outcomes, including infertility, fetal loss, preterm birth, birthweight, congenital malformations, and infant mortality. Includes current knowledge regarding epidemiology of these outcomes and discussion of methodologic issues. Three lecture hours per week.
Requisites: Co-requisites, BIOS 600 and EPID 600;
Grading status: Letter grade
Same as: MHCH 851.

EPID 853. Advanced Topics in Perinatal and Pediatric Epidemiology. 2 Credits.
Critical review of current topics in, and methods for, perinatal and pediatric epidemiology.
Requisites: Prerequisites, EPID 710 and 851; Permission of the instructor for master's level students.
Grading status: Letter grade
Same as: MHCH 853.

EPID 883. Teaching Experience in Epidemiology. 1-4 Credits.
Open to EPID majors, second-year or above. Provides epidemiology majors with supervised experience in teaching and course preparation. Students act as assistants in departmental courses. Two to eight seminar hours a week.
Grading status: Letter grade.

EPID 886. Readings in Epidemiology. 1-3 Credits.
Permission of the instructor required. Independent reading and tutorial guidance in special areas of epidemiology.
Grading status: Letter grade.

EPID 889. Topics in Epidemiology Seminar. 1 Credit.
EPID majors only. Topics are chosen to reflect emerging issues in the field, as well as those that meet the interests of the students and faculty in the department.
Requisites: Prerequisite, EPID 710.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EPID 890. Seminar for M.S.P.H. Students. 1 Credit.
A workshop for addressing special topics related to M.S.P.H. program including, but not limited to, research topic development, career planning, and public health ethics.
Grading status: Letter grade.

EPID 891. Epidemiology Doctoral Seminar. 2 Credits.
Exposes students to issues and debates in the philosophy of science, the object of knowledge in epidemiology, and the place of epidemiology in public health.
Grading status: Letter grade.

EPID 892. Interdisciplinary Seminar in Health Disparities. 1 Credit.
This seminar will provide an opportunity for students to synthesize knowledge across disciplines and to develop an interdisciplinary approach to addressing their identified health disparities research topic.
Requisites: Prerequisite, MHCH 756.
Grading status: Letter grade
Same as: MHCH 892.

EPID 893. Pharmacoepidemiology Seminar. 1 Credit.
Required preparation, basic knowledge of epidemiology and biostatistics. This is a weekly seminar to explore current problems in pharmacoepidemiology. It supplements the introductory course, EPID 765. May be repeated. Two seminar hours a week.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EPID 894. Infectious Disease Seminar. 1 Credit.
Required preparation, introductory epidemiology and biostatistics. Detailed review of selected topics in infectious disease epidemiology. May be repeated for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EPID 895. Seminar in Oral Epidemiology. 1 Credit.
Explores conceptual and methods issues in conducting epidemiologic investigations of oral conditions, specifically caries, periodontal disease, and oral cancer (topics rotate semesters).
Requisites: Prerequisite, EPID 710.
Grading status: Letter grade.

EPID 897. Advanced Seminar in Cardiovascular Research. 1-3 Credits.
Permission of the instructor. Review of substantive and methodological research in cardiovascular and cerebrovascular diseases. May be repeated for credit. Two to six seminar hours a week.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EPID 900. Epidemiology Practice. 4 Credits.
Designed to give epidemiology majors a supervised field experience in population health research.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

EPID 905L. Epidemiology Laboratory Practice. 0.5-9 Credits.
Permission of the instructor. Students work individually with a faculty member on supervised laboratory research and skills development. May be repeated for credit. Two to 18 laboratory hours a week.
Grading status: Letter grade.

EPID 910. Research in Epidemiology. 1-9 Credits.
Permission of the instructor. Independent investigation in consultation with an instructor who must assign or approve the subject of research. Credits vary according to the effort and rigor of the research.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EPID 992. Master's (Non-Thesis). 3 Credits.

EPID 994. Doctoral Research and Dissertation. 3 Credits.

Master of Public Health (M.P.H.) Applied Epidemiology Concentration Description

In the Applied Epidemiology concentration (https://sph.unc.edu/resource-pages/master-of-public-health-2/applied-epidemiology-concentration), students will learn to apply epidemiologic tools and approaches to describe patterns of disease or public health issues affecting diverse populations using an epidemiologic framework and, in turn, help drive solutions to problems. Examples of recent public health topics that our students have explored include HIV, cardiovascular disease, environmental exposures, the opioid epidemic, suicide rates, HPV vaccine, efficacy of cancer treatments, and the role of nutrition, among others.

Requirements

Requirements for the **M.P.H.** degree in the **Applied Epidemiology** concentration

Code	Title	Hours
MPH Integrated Core		
SPHG 711	Data Analysis for Public Health Fall 1	2
EPID 711	Clinical Measurement and Evaluation Fall 1	3
SPHG 713	Understanding Public Health Issues Fall 1	2
SPHG 721	Conceptualizing Public Health Solutions Spring 1	2
SPHG 722	Developing, Implementing, and Evaluating Public Health Solutions Spring 1	4
MPH Concentration		
EPID 750	Fundamentals of Public Health Surveillance Fall 1	3
EPID 716	Epidemiologic Data Analysis Spring 1	3
EPID 759	Methods in Field Epidemiology Fall 2	3
Graduate-level epidemiology course TBD Fall 2		2
EPID 795	Data in Public Health Spring 2	3
MPH Practicum		
SPHG 701	MPH Practicum Preparation Spring 1	2
Practicum: 200 minimum hours Summer 1		
SPHG 702	MPH Practicum Reflection Fall 2	1
MPH Electives		
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
MPH Culminating Experience		
EPID 992	Master's (Non-Thesis) Spring 2	3
Total Hours		42

Competencies

Students will develop the following **Applied Epidemiology competencies**, building on the foundational public health knowledge they attain in the Gillings M.P.H. Integrated Core courses.

EPID01.	Evaluate critically the relevant body of the scientific literature, considering the perspectives of relevant community stakeholders.
EPID02.	Understand surveillance systems and how they can be applied to a disease or condition of public health importance, using evolving technologies and data linkages.
EPID03.	Recommend specific epidemiologic study designs – including appropriate study populations, strategies of data collection – to identify or monitor public health problems, investigate etiologic and preventive relations, and provide epidemiologic input for program evaluation.
EPID04.	Create or implement data collection tools and linkages, with adequate consideration of ethical and privacy considerations, data management principles, data security, quality control, and oversight.
EPID05.	Conduct and interpret data analyses of epidemiologic data, including datasets made available by governmental and other organizations, to address research questions, taking account of data quality, measurement error, and potential for bias, including confounding.
EPID06.	Communicate epidemiologic concepts and findings to a wide range of stakeholders, from lay to professional audiences.

Master of Public Health (M.P.H.) Health Equity, Social Justice, and Human Rights Concentration Description

Students in the interdisciplinary Health Equity, Social Justice, and Human Rights (EQUITY) concentration (https://sph.unc.edu/resource-pages/master-of-public-health-2/health-equity-social-justice-and-human-rights-concentration) develop the skills to improve population health through identifying health inequities and eliminating them with innovative approaches. Graduates possess a foundational understanding of how social determinants contribute to health inequities and have hands-on experience applying strategies, methods, and interventions to advance social justice and human rights.

Requirements

Requirements for the **M.P.H.** degree in the **Health Equity, Social Justice, and Human Rights** concentration

Code	Title	Hours
M.P.H. Integrated Core		
SPHG 711	Data Analysis for Public Health Fall 1	2
SPHG 712	Methods and Measures for Public Health Practice Fall 1	2
SPHG 713	Understanding Public Health Issues Fall 1	2
SPHG 721	Conceptualizing Public Health Solutions Spring 1	2
SPHG 722	Developing, Implementing, and Evaluating Public Health Solutions Spring 1	4
M.P.H. Concentration		
HBEH 720	Leading for Racial Equity: Examining Structural Issues of Race and Class	2
ENVR 784	Community-Driven Research and Environmental Justice Spring 2	3
HBEH 700	Foundations of Health Equity Fall 1	3
EPID 826	Introduction to Social Epidemiology Fall 2	2
PUBH 748	Leadership in Health Policy for Social Justice Fall 2	3
EPID 892	Interdisciplinary Seminar in Health Disparities Fall 2	1
M.P.H. Practicum		
SPHG 701	MPH Practicum Preparation Spring 1	2
Practicum: 200 minimum hours Summer 1		
SPHG 702	MPH Practicum Reflection Fall 2	1
M.P.H. Electives		
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
M.P.H. Culminating Experience		
EPID 992	Master's (Non-Thesis) Spring 2	3
Total Hours		41

Competencies

Students will develop the following **Health Equity, Social Justice, and Human Rights competencies**, building on the foundational public health knowledge they attain in the Gillings M.P.H. Integrated Core courses.

HSH01.	Critically evaluate the ways in which current and historical policies, institutions, and groups influence social determinants of health and contribute to inequities in health across the life course.
HSH02.	Integrate relevant strategies, methodologies, and measures for research, practice, and policies that advance health equity, social justice, and human rights.
HSH03.	Interpret data to identify the systemic inequities across multiple sectors, such as health, education, criminal justice, business, housing, and economic development.
HSH04.	Critique multilevel, structural, and systems approaches to public health research and practice using principles of health equity, social justice, and human rights.
HSH05.	Evaluate how health programs and policies address health equity, social justice, and human rights.
HSH06.	Incorporate cultural humility principles in public health research, practice, and policy.

Admissions

Please visit Applying to the Gillings School (https://sph.unc.edu/students/how-to-apply) first for details and information. Application to the residential M.P.H. is a two-step process. Please apply separately to (1) SOPHAS and (2) UNC–Chapel Hill (via the Graduate School application). Visit https://gradschool.sites.unc.edu/master-of-public-health/ for more details. If you are interested in the online M.P.H., please visit the M.P.H.@UNC (https://onlinemph.unc.edu) Web site and fill out an inquiry form.

Practicum

This 200 (minimum) hour planned, mentored, and evaluated work experience (paid or unpaid) gives students the real-world opportunity to integrate and apply knowledge, skills, and values from Year One of their Gillings M.P.H. training in a professional public health setting such as a nonprofit organization, hospital, local or state health department, or for-profit firm (public or private sectors). Please visit the M.P.H. Practicum Web site (https://sph.unc.edu/resource-pages/master-of-public-health-2/mph-practicum) for additional information. In order to meet graduation requirements, a Gillings M.P.H. practicum must:

1. Occur after a student has completed the Gillings M.P.H. Core courses, the M.P.H. practicum preparation course (SPHG 701), and at least one concentration-required course from the student's declared concentration. In extenuating circumstances and with the approval from the student's declared concentration, some exceptions may apply.
2. Yield a least two student-generated products, produced in the practicum setting for the practicum setting, that allow for attainment of at least three (CEPH) M.P.H. Foundational and two concentration-specific competencies (Appendix A). In extenuating circumstances and with the approval from the concentration, students can petition to substitute up to two CEPH Foundational competencies for the concentration-specific competencies.
3. Be mentored by a supervisor (preceptor) with an advanced degree in public health or equivalent experience with expertise in the practicum project area.
4. Comprise a *minimum* of 200 hours (equivalent to five weeks of full-time work) in a location approved for student travel (UNC Travel Policy (https://global.unc.edu/files/2018/02/UNC-Travel-Policy-Final.pdf)), and the student must complete *UNC Gillings International Pre-Departure Travel Requirements* prior to travel.

Culminating Experience

Each student completes a 3-credit culminating experience and produces a high-quality written product that is completed near the end of the program of study. This culminating experience ideally is delivered in a manner that is useful to external stakeholders, such as nonprofit or governmental organizations, and could take the form of a course-based capstone project or master's paper, but will be tailored to the concentration a student chooses.

Academic Advising and Faculty Mentoring

We are committed to providing quality academic advising and mentoring for all students. We ensure that M.P.H. students get the guidance

they need with several components: 1) an orientation program that provides an overview of the types and sources of M.P.H. advising; 2) cohort advising sessions to disseminate information that is relevant to course planning and registration; 3) faculty mentoring that provides students with tailored support for their academic, professional, personal development, and practicum support.

M.P.H. students will complete a 2-semester, 12-credit-hour **Integrated Core** taught by an interdisciplinary team of instructors. The 6-credit first semester (fall) focuses on understanding public health issues, and the second semester (6-credit spring courses) focuses on creating solutions to those issues.

All M.P.H. students take **COMPASS (Core Online Modules to Promote and Accelerate Student Success).** These brief, self-paced online modules are open for students prior to their first academic year. Students can complete any and all parts of COMPASS up to and including the first week of class.

Electives: For the remaining 9 credits, students are free to choose elective courses from any of the 12 concentration areas listed above or from other courses in the Gillings School.

For information on policies and procedures, please visit the Gillings School Student Handbook (https://sph.unc.edu/students/gillings-school-student-handbook) Web site.

DEPARTMENT OF EXERCISE AND SPORT SCIENCE (GRAD)

Contact Information

Department of Exercise and Sport Science
Visit Program Website (https://exss.unc.edu)

Darin A. Padua, Chair

The mission of the Department of Exercise and Sport Science (EXSS) is to discover and promote knowledge of human movement to improve quality of life. Its vision is to transform society by developing leaders and translating scientific knowledge into practical applications. The department prepares individuals to function as scientists, educators, and practitioners. The program offers a master of arts degree in exercise and sport science with specialization in one of three areas: athletic training, exercise physiology, and sport administration. EXSS seeks to provide all students with focused, in-depth knowledge and skills, and an understanding of the challenges facing the areas of athletic training, exercise physiology, and sport administration as well as a global understanding of exercise and sport.

In pursuit of maximum fulfillment of its mission, the department also offers quality practical experiences to students. EXSS has an association with numerous other campus and local area units such as Athletics, Emergency Medicine, Orthopedics, the Duke Center for Living, the Lineberger Comprehensive Cancer Center, Get Real and Heel, the Meadowmont Wellness Center, Campus Health Services, Carolina Adventures, Campus Recreation, the North Carolina High School Athletic Association, and local public parks and recreation departments. Supervised assistantships and internships outside the department help students develop practical skills in the specific fields of study. Furthermore, the requirement of a structured research experience for all master's degree students is an integral part of every student's program of study. Additional research experience opportunities are numerous, and it is an expectation of the department that graduate students will become actively involved in conducting research while studying at UNC–Chapel Hill.

Additional information regarding the Department of Exercise and Sport Science can be found at the department's Web site (http://www.unc.edu/depts/exercise).

Admission

The master's degree programs in exercise and sport science are open to individuals from diverse backgrounds. However, the majority of past entrants into the program have earned undergraduate degrees in exercise science, kinesiology, physical education, or recreation/leisure studies. The department offers admission to the fall semester only. Potential applicants seeking admission information pertaining to their specific area of specialization should go to the EXSS Graduate Program Admissions page (http://exss.unc.edu/graduate-programs/admissions).

Application Prerequisites and Requirements

All areas of specialization within the exercise and sport science master of arts program have specialization-specific prerequisite coursework and/or experiences for all applicants. Successful completion of an undergraduate statistics class is a prerequisite for all areas of specialization. All applicants must have had a statistics class, or other coursework that includes appropriate content and topics in statistical analysis. Applicants are strongly encouraged to satisfy the statistics prerequisite by having completed an undergraduate statistics class at the time of the application. Advanced Placement credit in statistics will not satisfy this prerequisite, only classes actually taken at the college level. For additional application and admissions information, see the department's Web site (http://www.unc.edu/depts/exercise) or The Graduate School's Web site (http://gradschool.unc.edu/admissions).

Assistantships

The Department of Exercise and Sport Science awards a number of teaching and research assistantships annually to help fund students' education and to provide practical experiences related to their area of study. Assistantships may involve one or more of the following activities: research assistant, teaching assistant for lifetime fitness and physical activity courses, teaching assistant for the exercise and sport science laboratories, certified athletic trainer, or athletic department assistant. Students may apply for these assistantships by completing and returning the appropriate application form. Please contact the executive assistant to the graduate program in the Department of Exercise and Sport Science for additional information at (919) 962-0018 or email atkins@email.unc.edu.

The Department of Exercise and Sport Science's graduate program offers a master of arts degree in exercise and sport science. Applicants to the program must choose between three areas of specialization: athletic training, exercise physiology, and sport administration. The minimum number of semester credit hours required by The Graduate School for the master of arts degree is 30. However, the minimum required by each area of specialization in exercise and sport science varies and typically exceeds 30 hours. Required courses are determined by the faculty in each area of specialization. In addition to course requirements and other required curricular experiences, all students in both the athletic training and exercise physiology areas of specialization must pass a written comprehensive examination on all coursework, while sport administration students must complete an approved substitute for the comprehensive exam in the form of two capstone courses. Students in all three areas of specialization must complete a research thesis, and successfully defend the thesis in a final oral examination on the thesis.

Specialization Descriptions

Athletic Training

The Department of Exercise and Sport Science offers a specialization in athletic training at the graduate level which has existed as a post-professional athletic training education program since 1975. Our program is one of only a few remaining graduate programs in the United States that is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). The primary mission of the post-professional athletic training education program is to provide a science/practice model designed to educate and develop clinical scholars to be leaders in the field of athletic training. The major objectives for students in the program are

1. to provide advanced experiences that improve clinical skills related to evidence-based clinical practice, and
2. to help students develop the academic skills needed to evolve clinical practice and advance the profession of athletic training.

We recruit graduate students who are Board of Certification certified athletic trainers who have distinguished themselves both academically and as highly competent clinicians. We provide the means for each graduate student to gain advanced knowledge and experience in

prevention, evaluation, management, and rehabilitation of sport-related injuries through a combination of didactic lecture in the classroom, supervised practical application of this knowledge in a clinical setting, and a strong science-research experience oriented toward clinical practice. All students admitted to this program serve as teaching assistants in the lifetime fitness program and as athletic trainers in the Department of Athletics. A comprehensive examination on all coursework and a research thesis are required of all students. The athletic training program's Web site (http://exss.unc.edu/graduate-programs/specializations/athletic-training) contains additional detailed information.

Exercise Physiology

The mission of the exercise physiology specialization is to prepare students to pursue research careers in exercise physiology related fields, biomedical industries, or careers in the fitness/wellness industry. Biomedical and wellness careers include sport settings, hospital fitness centers or clinics, academic or industry research assistants/coordinators, or biotechnology industry.

Students preparing for research careers or Ph.D. programs are provided an advanced understanding of how the physiological constructs are applied to exercise and the environment, as well as knowledge of the research process. Additionally, those students are provided the opportunity to develop laboratory techniques and acquire laboratory skills. Students preparing for a career in the fitness/wellness field are provided background, testing skills, and practical experience to succeed in a variety of settings. Many exercise physiology graduate students, no matter the area of focus, have presented research at national and regional science conferences, as well as other professional meetings.

Sport Administration

The mission of the sport administration specialization is to integrate theory and practice to prepare graduate students for leadership positions in intercollegiate athletics. Within a two-year learning experience, the sport administration graduate student cohort, consisting of a highly select and diverse group of students from across the United States, engages in both formal coursework and intense practical experiences designed to prepare for a college sport administration career. During their first year, students are provided challenging coursework in administration, economics/finance, legal issues, sport marketing, governance and compliance, research methods/statistical analyses, and sport facility and event management. In addition, students engage in extensive hands-on event-operations experiences with the (UNC) Athletic Department. During the second year, students complete a full-time, one-year internship in a functional area within the UNC Department of Athletics, a capstone two course sequence, and a research thesis. Thirty-two hours of graduate coursework are required.The program's Web site (http://exss.unc.edu/graduate-programs/specializations/sport-administration) contains additional information.

Law and Sport Administration Dual-Degree Program (J.D.–M.A.)

The dual-degree program provides an opportunity for students who are interested in both law and sport administration to earn both degrees over four years of study. Students benefit from a respected law curriculum, combined with a sport administration curriculum with a unique focus on intercollegiate athletics. There is a growing market in college athletics for professionals with both degrees. Graduates of the dual-degree program may work in athletic compliance and enforcement at a university, conference office, or national governing body such as the National Collegiate Athletic Association (NCAA). Legal positions in athletic departments, fundraising and development, and law firms that represent colleges and conferences are also likely. To be eligible to apply for the J.D.–M.A. dual-degree program students must be currently enrolled in their second year in the UNC–Chapel Hill School of Law. Students will be responsible for paying tuition and fees separately to both the Law School and The Graduate School. The M.A. in exercise and sport science must be completed prior to or simultaneously with completion of the J.D. degree. Completion of the M.A. requires successful completion of all required exercise and sport science courses, a capstone two course sequence, and a research thesis.

Ph.D. Study

An interdisciplinary program in the Human Movement Science Curriculum (HMSC) is available and designed to provide students from various fields an opportunity to pursue doctoral studies. The Department of Allied Health Sciences grants the degree. A key feature of this program is the interdisciplinary orientation of faculty and the combined efforts of several successful programs that span across campus and beyond. The program reflects the ongoing interest, planning, and cooperation of the following departments and schools at UNC–Chapel Hill: the Department of Allied Health Science's Division of Physical Therapy, the Department of Exercise and Sport Science, the joint UNC–NCSU Biomedical Engineering Program, the Gillings School of Global Public Health and its Department of Epidemiology, and the UNC School of Medicine's Department of Orthopedics and Department of Physical Medicine and Rehabilitation.

The mission of HMSC is to prepare scholars to be exceptional interdisciplinary researchers, educators, and leaders in the field of human movement. HMSC prepares doctoral research scholars who will create and disseminate knowledge in human movement science. Program graduates excel in functioning as part of a team to address scientific problems related to human movement in a global, integrated manner. HMSC faculty members conduct applied and translational research using interdisciplinary approaches focused on healthy and impaired human movement. Research conducted through the program reflects the complexity and interdependence of the multiple systems underlying movement and ultimately will promote health and physical well-being. Students of varied academic disciplines are accepted into the program and study across the spectrum of biomechanics, exercise physiology, and neuromuscular control/motor learning. The curriculum's Web site (http://hmsc.unc.edu) contains additional information.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Claudio L. Battaglini (32), Clinical Exercise Physiology, Exercise Assessment and Prescription
J. Troy Blackburn (33), Biomechanics, Neuromuscular Control, Sports Medicine
Kevin M. Guskiewicz (24), Sports Medicine, Anatomy
Anthony C. Hackney (21), Exercise Physiology, Metabolism and Endocrinology
Barbara J. Osborne (29), Legal Issues, Sport Administration
Darin A. Padua (22), Anatomy, Biomechanics, Sports Medicine
William E. Prentice (15), Athletic Training, Sports Medicine

Associate Professors

Michael D. Lewek (51), Biomechanics
Jason P. Mihalik (40), Traumatic Brain Injury, Sports-Related Traumatic Brain Injury
Brian G. Pietrosimone (45), Sports Medicine, Joint Injury, Neuromuscular Control
Eric D. Ryan (41), Exercise Physiology, Muscle Function
Edgar W. Shields Jr. (10), Applied Statistics, Research Design
Abbie E. Smith-Ryan (43), Exercise Physiology, Metabolism and Body Composition
Erianne A. Weight (42), College Sport Business (Entrepreneurship, Management, Finance)

Assistant Professors

Erik D. Hanson (48), Clinical Exercise Physiology, Muscle Physiology, Immunology
Jonathan Jensen (52), Sport Marketing, Sport Analytics, Consumer Behavior
Zachary Kerr (50), Epidemiology, Traumatic Brain Injury, Injury Prevention Evaluation
Kristen L. Kucera (46), Sports/Occupational Injury Epidemiology, Musculoskeletal Disorders, Surveillance Exposure Assessment
Nels K. Popp (47), Revenue Generation within College Athletics, Sport Sales, International Sport
Johna Register-Mihalik (44), Athletic Training, Sports Medicine
Lee Stoner (53), Cardiometabolic, Lifestyle Pediatric, Measurement
Erik A. Wikstrom (49), Athletic Training, Neuromuscular Control, Sports Medicine

Teaching Professors

Meredith A. Petschauer
Sherry L. Salyer

Teaching Associate Professor

Alain J. Aguilar

Teaching Assistant Professors

Rebecca L. Battaglini
Bob Malekoff
Debra C. Murray
Kristin S. Ondrak
Danielle M. Smith

Clinical Assistant Professor

Jonathan D. Defreese

Lecturers

Roberto Aponte
Benjamin M. Goerger
Richard T. Kagan
Greg Moore
Lee R. Schimmelfing
James Strong
Heather L. Tatreau
Nina Walker
Sunny Yu

Post-Doctoral Research Associates

Mary S. Cain
Avinash Chandran
Cassie B. Ford

Adjunct Professors

David J. Berkoff, Orthopaedics
Carol A. Giuliani, Allied Health Sciences
Deborah L. Givens, Allied Health Sciences
Michael T. Gross, Allied Health Sciences
Laurence M. Katz, Emergency Medicine
Stephen W. Marshall, Epidemiology
Karen L. McCulloch, Allied Health Sciences
Joseph Myers, Exercise and Sport Science
Deborah E. Thorpe, Allied Health Sciences
Bing Yu, Allied Health Sciences

Adjunct Associate Professor

Vicki S. Mercer, Allied Health Sciences

Adjunct Assistant Professors

Bradley Bates, Sport Administration
Kevin A. Carneiro, Physical Medicine Rehabilitation
Elizabeth G. Hedgpeth (30), Sport Psychology
Shawn Kane
Robert Lutz
James Lynch
Prudence Plummer, Allied Health Sciences
Erin B. Wasserman

Professor of the Practice

Richard A. Baddour

Professors Emeriti

M. Deborah Bialeschki
John E. Billing
Bonita L. Marks
Robert G. McMurray
Frederick O. Mueller
Francis Pleasants Jr.
John M. Silva

EXSS

Advanced Undergraduate and Graduate-level Courses

EXSS 408. Theory and Application of Strength Training and Conditioning for Fitness Professionals. 3 Credits.
Instructor may approve equivalents for prerequisites. This is an intermediate- to upper-level course designed to provide students with theoretical and practical knowledge of the physiological, biomechanical, functional, and administrative aspects of designing and supervising conditioning programs for various populations.
Requisites: Prerequisites, EXSS 175 and 276.
Grading status: Letter grade.

EXSS 410. Exercise Testing and Prescription. 4 Credits.
Students must take laboratory section along with class. This is an upper division undergraduate course designed to provide the theoretical and practical knowledge in basic exercise testing and prescription for both healthy and select special populations.
Requisites: Prerequisites, EXSS 175, 276 and 376.
Grading status: Letter grade.

EXSS 420. Program Planning in Recreation Services. 3 Credits.
This experiential course covers the concepts and skills used in program planning. Students apply their program planning skills to real-life situations and implement a recreation program for a community agency. Previously offered as RECR 420.
Gen Ed: EE- Service Learning.
Grading status: Letter grade.

EXSS 430. Introduction to Leadership and Group Dynamics. 3 Credits.
An analysis of the techniques, methods, and motives of group and community leaders. Special attention is focused upon the roles of organizational structure, personnel policies, and in-service training programs. Previously offered as RECR 430.
Gen Ed: CI.
Grading status: Letter grade.

EXSS 450. Essentials of Corrective Exercise Training. 3 Credits.
This course provides students with knowledge and experience in designing corrective exercise programs. Students will learn to assess posture, movement quality, range of motion, and strength. Students will also learn to correct abnormalities exercises for various body parts. Knowledge will be gained via lecture and laboratory activities. Previously offered as EXSS 350.
Requisites: Prerequisites, EXSS 175 and 276.
Grading status: Letter grade.

EXSS 475. Functional Anatomy. 3 Credits.
This course provides an in-depth exploration of joint mechanics. It exposes students to motions of the cervical, thoracic, and lumbar spine as well as the extremities, and relates these concepts to movement of the body during specific activities.
Requisites: Prerequisites, EXSS 175, 276, and 385.
Grading status: Letter grade.

EXSS 478. Sports Performance Training. 3 Credits.
An upper-level course designed to provide students who have a fitness background with the theoretical and practical knowledge related to the Performance Enhancement Specialization for athletes of all ages.
Requisites: Prerequisites, EXSS 175 and 276.
Grading status: Letter grade.

EXSS 479. Performance Enhancement Specialization for Health Professionals. 1 Credit.
An upper-level course designed to provide students who have a health profession background with the theoretical and practical knowledge related to the Performance Enhancement Specialization for athletes.
Requisites: Prerequisites, EXSS 175, 276, 366, and 368.
Grading status: Letter grade.

EXSS 493. Field Experience in Sport Administration. 3 Credits.
This field experience offers implementation of theory and the practical application of sport administration in a sport organization worksite, under the direct supervision of a business professional.
Requisites: Prerequisites, EXSS 221 and at least two of the following: EXSS 322, 323, 324, 326; permission of the instructor required for students lacking the prerequisites.
Gen Ed: EE- Academic Internship.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

EXSS 576. Exercise Endocrinology. 3 Credits.
Advanced course examining the responses of the endocrine system to exercise and the adaptations that occur with exercise training. Provides the fundamentals necessary for exercise science and allied health science students to understand the integral role that the endocrine system plays in exercise.
Requisites: Prerequisites, EXSS 175, 276, and 376.
Grading status: Letter grade.

EXSS 580. Neuromechanics of Human Movement. 3 Credits.
This course explores interactions between the nervous and musculoskeletal systems via integration of concepts from neuroanatomy, neurophysiology, anatomy, neuromuscular control, and biomechanics. Topics include muscle mechanics, sensorimotor function, joint stability, movement disorders, neurocognition, and neuroplasticity following injury and disease. Course meetings involve both lecture and laboratory content.
Requisites: Prerequisites, EXSS 175, 380, and 385.
Grading status: Letter grade.

EXSS 593. Practicum in Physical Fitness and Wellness. 1-3 Credits.
Recommended preparation, EXSS 360 - site dependent. Current CPR certification and student liability insurance is required. Introductory practical experience to enable student to apply knowledge and skills in a worksite under direct supervision of certified professionals.
Requisites: Prerequisites, EXSS 220, 385, 408, and 410.
Gen Ed: EE- Academic Internship.
Grading status: Letter grade.

EXSS 693H. Senior Honors Thesis. 3 Credits.
Required preparation, a cumulative grade point average meeting the University standard and permission of the department. Directed independent research under the supervision of a faculty advisor who teaches in the exercise and sport science curriculum.
Requisites: Prerequisite, EXSS 273.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

EXSS 694H. Senior Honors Thesis. 3 Credits.
Required preparation, a cumulative grade point average meeting the University standard and permission of the department. Preparation of an honors thesis and an oral examination on the thesis.
Requisites: Prerequisite, EXSS 273.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

EXSS 700. Applied Statistics and Research Methods in Exercise and Sport Science. 3 Credits.
Required preparation, undergraduate statistics course. Applied statistical analysis - interpretation of data from exercise and sport science. Emphasis: choosing method of analysis, using statistics software to run analyses. Major topics: experimental and nonexperimental research design, sampling, hypothesis testing, power calculation, t-tests, ANOVA, correlation, simple and multiple regression, and chi square.
Grading status: Letter grade.

EXSS 705. Applied Statistics and Research Methods Laboratory. 3 Credits.
Required preparation, any undergraduate statistics course. Builds heavily upon material presented in EXSS 700. Planning, conducting, and reporting of research. Thesis writing and writing for publication. Problem-solving and practical experience in applied statistical analysis, interpretation, and presentation of data from the field of exercise and sport science.
Grading status: Letter grade.

EXSS 730. Management of Athletic Injuries. 3 Credits.
Permission of the instructor for nonmajors. Designed to provide basic knowledge and skills that aid in the prevention and treatment of injuries common to athletics.
Grading status: Letter grade.

EXSS 732. Human Anatomy for Athletic Trainers. 4 Credits.
Graduate standing in exercise and sport science or permission of the instructor. The study of gross human anatomy, with emphasis on the functional and clinical aspects of the neck, back, and extremities as related to athletic injuries.
Grading status: Letter grade.

EXSS 733. Psychological Considerations for Injury and Rehabilitation. 3 Credits.
Athletic training graduate students only. Psychological impact of injury and rehabilitation on the injured athlete. Stress from injury, coping skills for the rigors of rehabilitation, and the improvement of communication skills in order to better the relationship between the athletic trainer, the injured athlete, and the injured athlete's coach.
Grading status: Letter grade.

EXSS 735. Sports Medicine Analysis: Special Problems Related to Sports Medicine. 3 Credits.
Permission of the instructor for nonmajors. Problem and research oriented.
Grading status: Letter grade.

EXSS 736. Clinical Methods in Athletic Training. 3 Credits.
Analysis of theories and techniques used in clinical sports medicine settings.
Requisites: Prerequisite, EXSS 730.
Grading status: Letter grade.

EXSS 737. Advanced Muscular Assessment and Treatment. 3 Credits.
Discussion of mechanical properties and healing of musculoskeletal tissues throughout the life cycle, and laboratory/seminar units concerned with assessment and treatment of musculoskeletal pathology.
Requisites: Prerequisites, EXSS 730, 732, and 736; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

EXSS 738. Laboratory Techniques in Sports Medicine. 3 Credits.
This course provides an introduction to measurement techniques used in sports medicine/athletic training research. Course meetings involve lecture and laboratory sessions which encompass data collection, analysis, and interpretation techniques.
Grading status: Letter grade.

EXSS 739. Practicum in Athletic Training. 3 Credits.
Graduate standing in exercise and sport science or permission of the instructor. The implementation of theories and practices in a professional setting under the direction of a competent practitioner.
Grading status: Letter grade.

EXSS 740. Administration of Sport. 3 Credits.
Permission of the instructor for nonmajors. Policies and problems of organization and administration of athletic programs in colleges.
Grading status: Letter grade.

EXSS 742. Social Issues in Exercise and Sport. 3 Credits.
A comprehensive study of race and gender discrimination, adherence, value development, violence, and other socialization factors in youth, collegiate, and Olympic sport.
Grading status: Letter grade.

EXSS 744. Collegiate Sport Marketing. 3 Credits.
Graduate standing required. This course is designed to develop a thorough understanding of sport marketing principles and their application to collegiate athletics.
Grading status: Letter grade.

EXSS 746. Organizational and Financial Management of Sport. 3 Credits.
Graduate standing in exercise and sport science or permission of the instructor. The study of administrative structures and financial concerns of collegiate athletic programs. An intensive study of NCAA regulations is included.
Grading status: Letter grade.

EXSS 747. College Sport Facility and Event Management. 3 Credits.
This course provides students with necessary knowledge and skills to manage college-sport facilities and plan a complete sport event. Students also evaluate facility functions related to risk and event management.
Grading status: Letter grade.

EXSS 748. Legal Issues in Collegiate Sport. 3 Credits.
Provides an introduction to the United States legal system, legal principles, and legal issues related to intercollegiate athletics.
Grading status: Letter grade.

EXSS 749. NCAA Governance and Compliance. 3 Credits.
The implementation of theories and practices in a professional setting under the direction of a competent practitioner.
Requisites: Prerequisite, EXSS 740.
Grading status: Letter grade.

EXSS 750. Sport Administration Leadership Seminar I. 1 Credit.
Successful completion of first year in sport administration graduate program. An introduction of organizational leadership concepts in a practical applied context. Students will lead class discussion tying relevant current events with leadership theory.
Grading status: Letter grade.

EXSS 751. Sport Administration Leadership Seminar II. 1 Credit.
Successful completion of first year in sport administration graduate program. An introduction of organizational leadership concepts in a practical applied context. Students will lead class discussion tying relevant current events with leadership theory.
Grading status: Letter grade.

EXSS 770. Motor Learning. 3 Credits.
A study of the physical and psychological factors that influence skill acquisition and performance in sport and exercise, including applications to teaching and coaching.
Requisites: Prerequisite, EXSS 380; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

EXSS 780. Physiology of Exercise. 3 Credits.
The study of the physical, biochemical, and environmental factors that influence human performance. Emphasis is placed on metabolic, cardiovascular, respiratory, muscular, and endocrine systems. Three hours of lecture and two hours of laboratory per week.
Requisites: Prerequisite, EXSS 276 or 376.
Grading status: Letter grade
Same as: HMSC 702.

EXSS 781. Clinical Exercise Prescription and Testing. 2-3 Credits.
This course concentrates on the knowledge and skills necessary for providing exercise testing and prescription in the clinical setting, emphasizing cardiac rehabilitation.
Requisites: Prerequisite, EXSS 376; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

EXSS 782. Nutritional Aspects of Exercise. 2-3 Credits.
Graduate standing in physical education or permission of the instructor. Exploration of the role of macronutrients and micronutrients as they apply to exercise, physical conditioning, and competition. Students obtain experience in dietary analysis as it applies to athletic populations.
Grading status: Letter grade.

EXSS 783. Assessment of Physiological Functions in Exercise. 3 Credits.
Designed to develop laboratory techniques and experimental design skills as applied to the physiology of human performance.
Requisites: Prerequisite, EXSS 780; Permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EXSS 784. Advanced Topics in Exercise Physiology. 3 Credits.
Required preparation, completion of a graduate level exercise physiology course. Graduate standing required. This course deals with current and rapidly developing aspects of the exercise physiology field. Specifically enhancing and adding to the content area of basic physiology acquired in EXSS 780.
Grading status: Letter grade.

EXSS 785. Seminar in Exercise Physiology. 3 Credits.
Graduate standing in exercise and sport science or permission of the instructor. In-depth study of selected advanced topics in exercise physiology. Emphasis on metabolism, biochemical, and cardiorespiratory physiology, with student presentations on selected topics.
Grading status: Letter grade.

EXSS 789. Practicum in Exercise Physiology. 3 Credits.
The implementation of theories and practices of fitness or cardiac rehabilitation in a professional setting under the direction of an experienced practitioner.
Requisites: Prerequisite, EXSS 410L, 780, or 781; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

EXSS 890. Special Topics in Exercise and Sport Science. 1-3 Credits.
Graduate standing or permission of the instructor. The study of special topics directed by an authority in the field.
Grading status: Letter grade.

EXSS 990. Research in Exercise and Sport Science. 1-3 Credits.
Graduate standing in exercise and sport science or permission of the instructor. Individually designed research projects conducted by students under the direction of a graduate faculty member.
Grading status: Letter grade.

EXSS 993. Master's Research and Thesis. 3 Credits.

RECR

Graduate-level Courses

RECR 710. Leisure and Organized Recreation in the United States. 3 Credits.
An analysis of the scope of leisure research, recreation services, the evolution of leisure, and the of individual recreation behavior.
Grading status: Letter grade.

RECR 770. Administration of Therapeutic Recreation Services. 3 Credits.
Emphasis on information specific to the administration of therapeutic recreation such as fiscal management, quality assurance, evaluation, marketing of therapeutic recreation, and other general administrative topics.
Grading status: Letter grade.

RECR 775. Principles and Procedures in Therapeutic Recreation. 3 Credits.
A study of the existing practices and principles of therapeutic recreation. An in-depth treatment of assessment/evaluation, goal setting and individualized planning, documentation, leisure counseling, and clinical skills.
Grading status: Letter grade.

RECR 790. Independent Field Study. 3 Credits.
Permission of the department. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

RECR 830. Managing Organizational Behavior in Recreation Services. 3 Credits.
This course addresses organizational behavior and theory to promote insight into micro and macro issues confronting professionals in organized recreation services.
Grading status: Letter grade.

RECR 865. Issues and Trends in Recreation Management. 3 Credits.
A seminar to involve graduate recreation students in in-depth analyses of selected topics, issues, and problems relevant to the recreation management in public and not-for-profit leisure service organizations.
Grading status: Letter grade.

RECR 876. Issues and Trends in Therapeutic Recreation. 3 Credits.
An analysis of selected issues, problems, and concerns in the provision of therapeutic recreation and inclusive recreation services.
Grading status: Letter grade.

RECR 880. Internship in Recreation Administration. 2 Credits.
Participation in full-time, practical on-the-job experience in a recreational agency of the student's choice.
Grading status: Letter grade.

RECR 881. Internship in Recreation Administration. 2 Credits.
Completion of a professional project and in-depth paper reflecting the outcomes of the internship completed in RECR 880.
Grading status: Letter grade.

RECR 890. Seminar in Leisure Studies. 3 Credits.
A survey of contemporary views of society and their structures and functions, as they relate to concepts of leisure and recreation behaviors.
Grading status: Letter grade.

RECR 950. Recreation Research Design and Methods I. 3 Credits.
An appraisal of current recreation and leisure research design using both quantitative and qualitative data. Students complete and deliver a formal research proposal.
Grading status: Letter grade.

RECR 951. Recreation Research Design and Methods II. 3 Credits.
Required preparation, any statistics course. Students analyze quantitative and qualitative data and apply their work to theory and practice. Students complete the research proposed in RECR 950.
Requisites: Prerequisite, RECR 950.
Grading status: Letter grade.

RECR 993. Master's Research and Thesis. 3 Credits.

CURRICULUM IN GENETICS AND MOLECULAR BIOLOGY (GRAD)

Contact Information

Curriculum in Genetics and Molecular Biology
Visit Program Website (http://gmb.unc.edu)

John Cornett, Student Services Manager
jcornett@email.unc.edu

Jeff Sekelsky, Director

The Curriculum in Genetics and Molecular Biology is an interdepartmental predoctoral training program leading to a Ph.D. degree in genetics and molecular biology. The goal of this program is to train students to be creative, sophisticated research scientists within the disciplines of genetics and molecular biology. To this end, we emphasize acquisition of a foundation of knowledge, accumulation of the laboratory skills required for implementing research objectives, development of the ability to formulate experimental approaches to solving contemporary problems in the biological sciences, and completion of an original research project. During their first year, students enroll in graduate-level courses and participate in laboratory rotations. Subsequently, students select a faculty research advisor and establish an advisory committee. Research work is done in the laboratory facilities of the individual faculty member and is supported primarily by faculty research grants.

The curriculum faculty have appointments in 14 departments in the School of Medicine, the School of Dentistry, the Eshelman School of Pharmacy, and the College of Arts and Sciences. The faculty represent diverse research interests that use the tools of genetics, molecular biology, and biochemistry to address fundamental questions in the areas of cell cycle regulation, chromosome structure, development and disease models, DNA repair and recombination, genome stability, evolutionary genetics, genomics, human genetics, neurobiology, pathogens and immunity, signal transduction, transcription, gene regulation, and virology. Students are able to choose from a variety of biological systems and questions for their thesis research.

Requirements for Admission for Graduate Work

Applications from students with good academic records and interest in research careers in genetics and molecular biology are favorably considered. Applicants preferably have majored or minored in one of the following disciplines: genetics, biology (zoology or botany), microbiology, chemistry, mathematics, physics, or biophysics. They usually have taken calculus and organic and physical chemistry, although these are not essential. Applicants are accepted to begin their initial studies in the fall. They must apply to the program through a unified application program known as the Biological and Biomedical Sciences Program (BBSP). Students apply for graduate study in the biological or biomedical sciences at UNC–Chapel Hill. Students interested in any of the BBSP research areas apply to BBSP, and those whose application portfolio places them highest on the admission list are asked to visit Chapel Hill for interviews. Students who are ultimately admitted to UNC–Chapel Hill make no formal commitment to a specific Ph.D. program. After completing their first year of study students leave BBSP and join a dissertation laboratory and matriculate into one of 15 participating Ph.D. programs. During their first year BBSP students are part of small, interest-based groups led by several faculty members. These groups meet regularly and provide a research community for students until they join a degree-granting program. The application consists of Graduate Record Examination (GRE) scores, transcripts of records, three letters of recommendation, and a statement of purpose, all submitted through the Web-based application system of The Graduate School. Students are encouraged to apply as early as possible, preferably before December 1. (Applicants seeking a master's degree are not considered for admission.)

Financial Aid

Stipends for predoctoral students are available from an NIH predoctoral training grant and from the University. Tuition, student fees, and graduate student health insurance are also covered by the training grant and the University.

In addition to the dissertation requirements of The Graduate School (four full semesters of credit including at least six hours of doctoral dissertation; a written preliminary examination, an oral examination, and a dissertation), students in the Curriculum in Genetics and Molecular Biology must meet the following requirements:

- complete four didactic courses (GNET 621 and either GNET 631 OR GNET 632 are required; the other two may come from any appropriate combination of full-semester courses or five-week modules, with three modules being equivalent to a full course; at least one module or course must have a quantitative, statistical, or computational focus)
- complete one seminar/journal club course that focuses on critical reading of the literature
- act as a teaching assistant for one semester
- participate in a student seminar series as an attendee until the end of the third year
- present in the student seminar series in the third and subsequent years
- participate in the annual retreat held jointly with the Department of Genetics and the Curriculum in Bioinformatics and Computational Biology
- attend the weekly seminar series sponsored by the curriculum and the Department of Genetics
- publish at least one peer-reviewed research article as first or co-first author

Students are required to rotate through at least three laboratories before choosing a dissertation advisor. It is strongly recommended that students attend national meetings to better understand how their research fits with progress in their field.

Professors

Shawn Ahmed, Telomere Replication and Germline Immortality in *C. elegans*
Albert S. Baldwin, Regulation of Gene Expression, Control of Oncogenesis and Apoptosis
Victoria Bautch, Molecular Genetics of Blood Vessel Formation in Mouse Models
Kerry S. Bloom, Mechanisms of Chromosome Segregation in Yeast, Chromosome and Spindle Dynamics
Patrick Brennwald, Examination of Problems in Membrane Trafficking and Cell Polarity Using Genetics

Kathleen Caron, Genetically Engineered Animal Models in the Study of Human Disease
Frank L. Conlon, Mesodermal Patterning and Heart Development, T-Box Genes
Jeanette Gowen Cook, Integrating DNA Replication Control with Checkpoint Signaling
Gregory P. Copenhaver, Regulation of Meiotic Recombination in Higher Eukaryotes
Blossom Damania, Viral Oncogenes, Signal Transduction, Transcription and Immune Evasion of KSHV/RRV
Jeffery L. Dangl, Plant Disease Resistance and Cell-Death Control, Plant Genomics
Ian Davis, Mechanisms of Transcription Factor Deregulation in Cancer Development
Channing J. Der, Oncogenes, Ras Superfamily Protein, Signal Transduction
Dirk P. Dittmer, Anti-Lymphoma Therapies
Bob Duronio, Genetics of Cell-Cycle Control during *Drosophila* Development
Bob Goldstein, Generation of Cell Diversity in Early Development of *C. elegans*
Jack D. Griffith, HIV, Transcription, Electron Microscopy
Mark Heise, Genetics of Arbovirus Virulence and Immune Evasion
Corbin D. Jones, Population Genetics and Evolution in *Drosophila*
Jonathan Juliano, Malaria Drug Resistance, Diversity and Population Evolution
Joseph Kieber, Molecular Genetic Analysis of Hormone Signaling in *Arabidopsis*
Nobuyo Maeda, Genetics Modeling of Atherosclerosis in Mice
Terry Magnuson, Mammalian Genetics, Epigenetics, Genomics
William F. Marzluff, Regulation of RNA Metabolism in Animal Cells
A. Gregory Matera, Biogenesis of Small Ribonucleoproteins in Health and Disease
Karen L. Mohlke, Human Genetics and Genomics, Diabetes, Complex Diseases
Fernando Pardo-Manuel de Villena, Meiotic Drive, Chromosome Segregation, Non-Mendelian Genetics
Leslie V. Parise, Adhesion Receptors and Signaling in Platelets, Sickle Cells and Cancer
Charles Perou, Genomic and Molecular Classification of Human Tumors to Guide Therapy
Mark Peifer, Cell Adhesion, Signal Transduction and Cancer
Dale Ramsden, V(D)J Recombination, DNA Double Strand Break Repair
Aziz Sancar, Structure and Function of DNA Repair Enzymes, Biological Clock
Jeff Sekelsky, Genetics of Genome Instability in *Drosophila*
Brian Strahl, Histone Modifications and Gene Regulation
Ronald I. Swanstrom, Retroviruses, Molecular Biology of the AIDS Virus
Jenny P. Ting, Discovery of New Genes in Inflammation and Apoptosis, Functional Genomics of Immunologic and Neurologic Diseases
Cyrus Vaziri, Integration of DNA Replication and Repair
Ellen R. Weiss, Regulation of G-Protein-Coupled Receptor Signal Transduction Pathways
Bernard E. Weissman, Tumor Suppressor Genes, Cancer Genetics
Yue Xiong, Cancer Biology, Mammalian Cell Cycle, Tumor Suppressor Genes
Yanping Zhang, Genetics and Mechanisms of Cancer Cell Growth and Division

Associate Professors

Jonathan Berg, Clinical Adult and Cancer Genetics
Scott Bultman, Mouse Models of Human Disease, Chromatin-Modifying Factors, Epigenetics
Amy S. Gladfelter, Cytoskeleton Dynamics, Biophysical Cell Biology, Cytoplasm Organization
Zhongchao Han, Genomic DNA Transfer, Drug-Gene Delivery and Nanomedicine
Samir Kelada, Genetics and Genomics of Environmentally Induced Asthma
William Kim, Exploration of the Role of Hypoxia-Inducible Factor in Tumorigenesis
Amy Maddox, Mechanisms of Cell Shape Change
Paul Maddox, Mitotic Mechanisms and Chromosome Dynamics
C. Ryan Miller, Preclinical Experimental Therapeutics and Biomarker Research in Gliomas
Jason W. Reed, Plant Development, Auxin Signaling, Light Responses
Elizabeth Shank, Chemical Interactions in Microbial Communities
Shehzad Sheikh, Immune Responses to the Microbiome in Crohn's Disease and Ulcerative Colitis
Lisa Tarantino, Genetic Mapping of Complex Behavioral Traits
Scott Williams, Asymmetric Cell Division in Development and Disease, Epithelial Differentiation

Assistant Professors

Anthony Amelio, Camp Signaling, Gene Regulation, Alternative Splicing
J. Mauro Calabrese, Epigenetic Control by Long Noncoding RNAs, Genomics, Stem Cells, Cancer, Human Genetic Disorders
Jill Dowen, Three-Dimensional Genome Architecture and Gene Regulation in Development and Disease
Michael Emanuele, Cell Cycle Regulation by the Ubiquitin System
Hector Franco, Molecular, Cellular and Bioinformatic Dissection of Transcriptional Enhancers in Cancer
Jimena Giudice, Alternative Splicing, Epigenetic and Intracellular Trafficking in Heart and Skeletal Muscle Development and Diseases
Gaorav Gupta, Genome Integrity in Breast Cancer
Nate Hathaway, Mechanisms of Mammalian Genome Regulation, Chemical Biology and Drug Discovery
Kathryn Hoadley, Integrative Genomic Characterization of Cancer and precancer
Folami Ideraabdullah, Genetics, Toxicants, and Nutrition: Gene-Environment Interactions in Epigenetic Gene Regulation
Sarah Linnsteadt, Genetic and Transcriptional Mechanisms of Increased Chronic pain and PTSD
Daniel McKay, Developmental Genomics, Regulation of Gene Expression
Zachary Nimchuk, Plant Developmental Genetics and Stem Cell Regulation
Chad Pecot, Biology of Metastatic Cancer, Sirna Regulation of Gene Expression in Tumors
Douglas Phanstiel, Molecular Mechanisms Underlying Acquisition of Disease States in Cells
Jeremy Purvis, Signal Transduction in Cancer and Stem Cells
Yuliya Pylayeva-Gupta, Immunomodulatory Mechanisms in Pancreatic Cancer and Metastasis
Celia Shiau, Function and Development of Macrophages and Brain Microglia; Inflammation and Innate Immune Activation
Jason Stein, Genome Variation that Affects the Structure and Development of the Brain and Risk for Neuropsychiatric Illness
Ageliki Tsagaratou, Epigenetic and Transcriptional Regulation in T cell Differentiation, Function and Disease
Greg Wang, Epigenetics, Gene Regulation, and Disease, Notably Hematopoietic Malignancies

Hyejung Won, Genetics of Psychiatric Illnesses and Neurobiological Mechanisms.
Anthony Zannas, Bolecular Mechanisms Linking Psychosocial Stress with Disease Risk

GNET

Advanced Undergraduate and Graduate-level Courses

GNET 621. Principles of Genetic Analysis I. 3 Credits.
Prerequisite for undergraduates, BIOL 202. Permission of the instructor for undergraduates. Genetic principles of genetic analysis in prokaryotes and lower eukaryotes.
Grading status: Letter grade
Same as: BIOL 621.

GNET 622. Principles of Genetic Analysis II. 4 Credits.
Principles of genetic analysis in higher eukaryotes; genomics.
Requisites: Prerequisite, BIOL 621.
Grading status: Letter grade
Same as: BIOL 622.

GNET 623. Developmental Genetics Seminar. 1 Credit.
Permission of the instructor. Presentations of current research or relevant papers from the literature on development by students will be followed by open forum discussion of relevant points, and critique of presentation skills. Two hours per week.
Grading status: Letter grade.

GNET 624. Developmental Genetics. 3 Credits.
Permission of the instructor for undergraduates. Genetic and molecular control of plant and animal development. Extensive reading from primary literature.
Grading status: Letter grade
Same as: BIOL 624.

GNET 625. Seminar in Genetics. 2 Credits.
Permission of the instructor for undergraduates. Current and significant problems in genetics. May be repeated for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 6 total completions.
Grading status: Letter grade
Same as: BIOL 625.

GNET 631. Advanced Molecular Biology I. 3 Credits.
Required preparation for undergraduates, at least one undergraduate course in both biochemistry and genetics. DNA structure, function, and interactions in prokaryotic and eukaryotic systems, including chromosome structure, replication, recombination, repair, and genome fluidity. Three lecture hours a week.
Grading status: Letter grade
Same as: BIOC 631, BIOL 631, MCRO 631.

GNET 632. Advanced Molecular Biology II. 3 Credits.
Required preparation for undergraduates, at least one undergraduate course in both biochemistry and genetics. The purpose of this course is to provide historical, basic, and current information about the flow and regulation of genetic information from DNA to RNA in a variety of biological systems. Three lecture hours a week.
Grading status: Letter grade
Same as: BIOC 632, BIOL 632, MCRO 632.

GNET 635. Clinical and Counseling Aspects of Human Genetics. 3 Credits.
Topics in clinical genetics including pedigree analysis, counseling/ethical issues, genetic testing, screening, and issues in human research. Taught in a small group format. Active student participation is expected.
Requisites: Prerequisite, BIOL 425; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: BIOL 529.

GNET 645. Quantitative Genetics of Complex Traits. 1 Credit.
Students will learn about various topics that form the basis for understanding quantitative genetics of complex traits with biomedical and agricultural relevance. The ultimate goal of quantitative genetics in this postgenomic era is prediction of phenotype from genotype, namely deducing the molecular basis for genetic trait variation.
Requisites: Prerequisite, GNET 621.
Grading status: Letter grade.

GNET 646. Mouse Models of Human Disease. 1 Credit.
This course will focus on the laboratory mouse as a model organism to learn fundamental genetic concepts and understand how state-of-the-art experimental approaches are being used to elucidate gene function and the genetic architecture of biological traits.
Grading status: Letter grade.

GNET 647. Human Genetics and Genomics. 1 Credit.
The course covers principles and modern approaches of human genetics and genomics, including human genetic variation, linkage, genome-wide association analysis, sequencing for variant discovery in monogenic and complex diseases, regulatory variation, the molecular basis of human disease, and functional validation of disease variants.
Grading status: Letter grade.

GNET 655. Issues in Human Genetics. 1 Credit.
This course will provide an overview of methods in human genetics during the critical reading of selected literature and work of speakers that will present in the Friday Seminar Series.
Grading status: Letter grade.

GNET 675. Computational Genetics. 1 Credit.
A course on systems genetics focused on student participation and the development of targeted multidisciplinary responses to genetic questions.
Grading status: Letter grade.

GNET 680. Modeling Human Diseases in Mice. 1 Credit.
Permission of the instructor. This course will provide an overview of the use of the mouse as an experimental model for determining factors, both genetic and environmental, that contribute to human diseases. One seminar hour a week.
Grading status: Letter grade.

DEPARTMENT OF GEOGRAPHY (GRAD)

Contact Information

Department of Geography
Visit Program Website (https://geography.unc.edu)

Elizabeth A. Olson, Chair
eaolson@email.unc.edu

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The graduate program of the Department of Geography aims to produce leading scholars and practitioners who will make vital contributions to contemporary geographical, social, and environmental knowledge, research, teaching, and institutions. The department approaches this goal by creating an environment in which exceptional Ph.D. and M.A. students can draw on the strengths of faculty and research centers to develop and sharpen their own research interests, capabilities, and programs around critical geographical problems. The graduate curriculum is designed to promote a broad sense of the geographical tradition in its evolving relationship with other sciences, social sciences, and humanities disciplines, and to provide a disciplinary and interdisciplinary platform for more specialized scientific and scholarly investigation.

The program offers opportunities for graduate students with diverse backgrounds and goals to receive training in varied and integrated aspects of the discipline and to work directly with faculty members on specific research projects. Master's and doctoral degrees are offered, but the programmatic focus is on the doctoral degree. As much as possible, all programs are tailored to the needs and interests of the individual student. The student's academic advisor and committee members have prime responsibility for developing, with the student, an appropriate course sequence and research program and for providing mentoring of the student. The program aims to foster maximum flexibility for individuals while ensuring a uniformly high standard of geographical training for all graduate students. Graduate students work closely with research centers and programs related to their interests, including the Carolina Population Center, the Odum Institute for Research in Social Science, the Institute for the Study of the Americas (UNC–Chapel Hill and Duke University), the Center for the Study of the American South, the Carolina Center for the Study of the Middle East and Muslim Civilizations, the Southeast Regional Climate Center, the Sheps Center for Health Services Research, the Curriculum in Ecology, the Center for Urban and Regional Studies, the Curriculum in Environment and Ecology, and UNC–Chapel Hill's schools of public health and medicine. Up-to-date lists of geography faculty members and courses, along with additional information about the graduate program, faculty research projects, and other information are available on the department's Web site (http://geography.unc.edu). Students build strong research, teaching, and professional skills with emphases on data analysis, project design and management, and oral and written communication that prepare them for careers at universities and in public and private sectors.

A large proportion of graduate students receive financial assistance. Sources of aid include teaching assistantships and work on sponsored research projects within the department, University-wide competitive assistantships, nonservice fellowships and merit scholarships, and externally awarded fellowships.

The department occupies the top two floors of Carolina Hall and has access to extensive computational laboratories needed to fulfill its research and teaching mission, with specialized facilities dedicated to spatial analysis and the use of geographic information systems. A range of geographic data sets is readily available. An extensive collection of geographic books and periodicals, including an exceptionally strong collection of foreign periodicals, is held in the nearby Davis Library, while Wilson Library houses a large map collection.

The Department of Geography offers advanced work leading to the master of arts and doctor of philosophy degrees. Both the M.A. and Ph.D. degrees are offered, but the major emphasis of the program is on the Ph.D., even for those not yet possessing an M.A. Incoming students are roughly evenly mixed between those with and without a master's degree.

Incoming graduate students are required to complete three core courses (GEOG 702, GEOG 703, and GEOG 704) presenting the foundations of geographical theory, communication, and research. Thereafter the program of study is flexible and tailored to the needs of the individual student. Students select the appropriate coursework and dissertation topic in consultation with their advisor and research committee.

The Department of Geography has faculty strength in five overlapping areas of concentration. These represent coherent foci and areas of active faculty research, not mutually exclusive categories. Indeed, many students and faculty members work on projects that span more than one area. So, while intensive training is offered in a number of diverse areas, the program is noted for its integrative and cross-cutting approaches. The department's diverse graduate students are pursuing a wide variety of research at UNC–Chapel Hill.

Departmental research specializations include

Biophysical Geography and Earth Systems Science. UNC–Chapel Hill geographers examine the biophysical environment as an integrated system, emphasizing the linkages and feedbacks between terrestrial and atmospheric form and function. The focus is on the interactions between the structure and composition of the earth's surface, its soils and vegetation, and the atmosphere with those processes that actively cycle energy and material through them.

Culture, Society, and Space. UNC–Chapel Hill geographers investigate the intersection of space, place, landscape, and region with social and cultural processes, including issues of identity and representation, spatio-temporalities of social belonging and exclusion, and the production and circulation of value and values. This work encompasses a diversity of methodological approaches, scales, and concerns, from urban dynamics and symbolic spaces to rural landscapes, agrarian and industrial change, and social geographies of race, class, gender, health, and religion.

Geographic Information and Analysis. UNC–Chapel Hill geographers apply geographic information sciences as an integrated set of spatial digital technologies to investigate biophysical and social phenomena. They use and develop tools, techniques, concepts, and data sets associated with geographic information systems, remote sensing, data visualization, global positioning systems, spatial analysis, and quantitative methods.

Globalization and International Development. UNC–Chapel Hill geographers study the consequences of processes of globalization (and the anti-globalization and global justice movements they stimulate);

international development and its effects on the geographies of international and local capital, labor, technology, information, goods and services; postsocialism, political economy, political geography and geopolitics, and political ecology.

Nature-Society Studies and Human-Environment Interactions. Drawing on analytical and theoretical perspectives from ecology, socioecological systems, political ecology, science studies, and cultural studies, UNC–Chapel Hill geographers investigate the social contexts, drivers, and consequences of environmental change and struggles over land use and resources.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Michael Emch (29), Medical Geography, Spatial Epidemiology, Health and Environment, Geographic Information Systems (GIS), Remote Sensing
Scott L. Kirsch (23), Historical, Cultural, and Political Geography; Science and Technology Studies
Charles E. Konrad (16), Synoptic Climatology and Meteorology
Elizabeth Olson (41), Development and Inequality, Religion, Global Studies, Moral Geographies
John Pickles (26) (Earl N. Phillips Distinguished Chair of International Studies), International Studies, Regional Development, Geographic Thought, Political Economy
Conghe Song (24), GIS, Remote Sensing, Earth Systems
Stephen J. Walsh (12) (Lyle V. Jones Distinguished Professor), Remote Sensing, Geographic Information Systems (GIS), Physical

Associate Professors

Javier Arce-Nazario (43), Landscape History, GIS-Remote Sensing, Translational Geoscience, Critical Physical Geography, Water and Sustainability
Xiaodong Chen (38), Human-Environment Interactions, Systems Modeling and Simulation, Environmental Policy, GIS, China
Altha J. Cravey (17), Latin America, Social
Banu Gökariksel (28), Urban, Cultural, and Feminist Geography; Social Theory; Globalization and Modernity; the Middle East and Southeast Asia
Clark Gray (35), Population, Environment and Development; Survey and Statistical Methods
Elizabeth Havice (36), Political Economy and Ecology, International Development, Commodity Studies, Environmental Politics, Trade Politics, Fisheries Systems
Christian Lentz (39), Development, State Formation, Nationalism, Nature-Society Relations, Agrarian Studies, Southeast Asia
Nina Martin (31), Urban, Economic, and Migration Geography; Globalization and Urban Change; Urban Planning and Policy; Civil Society
Aaron Moody (18), Geographic Information Systems (GIS), Biogeography
Sara Smith (33), Political and Social Geography, Nationalism, Health, South Asia
Gabriela Valdivia (32), Political Ecology and Resource Geography, Extractive Economies, Indigenous Communities, Latin America
Erika Wise (34), Dendrochronology, Climatology, Water Resources

Assistant Professors

Andrew Curley (46) Navajo, Political Ecology, Indigenous Sovereignty, Water, Coal and Coal Workers, Development
Paul L. Delamater (44), Health and Medical Geography, Access to Healthcare Policy, Spatial Analysis, GIS
Diego Riveros-Iregui (42), Ecohydrology, Watershed Hydrology, Biogeochemistry, Land-Atmosphere Interactions, Tropical Hydrology, Climate and Land Use Cover Change

Adjunct Faculty

Carlos Mena (Universidad San Francisco de Quito, Ecuador), GIS, Latin America, Population Environment, Remote Sensing, Dynamic Modeling
Tamlin Pavelsky (Department of Geological Sciences), Hydrology, Remote Sensing, Climate Change
Diego Quiroga (Universidad San Francisco de Quito, Ecuador), Environmental Life and Sciences
Elizabeth Shapiro (Duke University), Market-Based Environmental Initiatives and Policies in Latin America
Andres Vina (Michigan State University), Environmental Change, Biophysical Properties of Vegetation, Human-Environment Interactions

Professors Emeriti

Stephen S. Birdsall
John W. Florin
Wilbert M. Gesler
Richard J. Kopec
Peter J. Robinson
Thomas M. Whitmore

GEOG

Advanced Undergraduate and Graduate-level Courses

GEOG 406. Atmospheric Processes II. 4 Credits.
Principles of analysis of the atmosphere are applied to the analysis of environmental phenomena. The link between the atmosphere and other environmental compartments is explored through environmental case studies.
Grading status: Letter grade
Same as: ENEC 406.

GEOG 410. Modeling of Environmental Systems. 3 Credits.
Uses systems theory and computer models to understand ecosystem energy and matter flows, such as energy flow in food webs, terrestrial ecosystem evapotranspiration and productivity, related to climate, vegetation, soils, and hydrology across a range of spatial and temporal scales.
Gen Ed: QI.
Grading status: Letter grade.

GEOG 412. Synoptic Meteorology. 3 Credits.
An analysis of synoptic weather patterns and the processes responsible for them. Climatological aspects of these weather patterns are emphasized. (EES)
Requisites: Prerequisite, GEOG 110 or 111.
Grading status: Letter grade.

GEOG 414. Climate Change. 3 Credits.
An investigation of the scientific basis of climate change (past, present, and future), the current state of knowledge concerning future projections, and the implications of climate change for society and the environment.
Grading status: Letter grade.

GEOG 415. Making Your Research Matter: Effective Design and Communication to Help Make an Impact on the World. 3 Credits.
This hands-on course will set you on a path towards being a researcher and scientist who will make a positive difference in the world through good research practices and effective communication. Topics will include: reproducibility and ethics, creating effective graphics, giving engaging oral and poster presentations, writing abstracts, social media use in research, communication with journalists, operating in the judicial and political arenas, and stakeholder outreach and public talks.
Gen Ed: CI.
Grading status: Letter grade.

GEOG 416. Applied Climatology: The Impacts of Climate and Weather on Environmental and Social Systems. 3 Credits.
Applied climatology involves the interdisciplinary application of climate data and techniques to solve a wide range of societal and environmental problems. This projects-based course investigates how climate impacts a range of sectors, including water resources, urban environments, ecosystems, and human health.
Gen Ed: PL.
Grading status: Letter grade.

GEOG 419. Field Methods in Physical Geography. 3 Credits.
Involves evaluation of landscapes by examining nature and biophysical elements influencing landscape form and function. Course emphasizes data collection, analysis, and interpretation using GIS and field methods. (EES)
Gen Ed: EE- Field Work.
Grading status: Letter grade.

GEOG 423. Social Geography. 3 Credits.
A study of the spatial components of current social problems, such as poverty, race relations, environmental deterioration and pollution, and crime. (GHA)
Grading status: Letter grade.

GEOG 424. Geographies of Religion. 3 Credits.
This course considers the theoretical and empirical dimensions of religion from a geographical perspective. The course introduces the key theories linking space, place, and religion and helps students apply these new theoretical tools to examine some of the pressing issues in the contemporary study of religion.
Gen Ed: CI, GL.
Grading status: Letter grade.

GEOG 428. Global Cities: Space, Power, and Identity in the Built Environment. 3 Credits.
This course addresses questions of power, politics, and identity in the urban environment, with a focus on the emergence of key selected global cities and the processes that both created them historically and which are currently transforming them locally and globally.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: PLAN 428.

GEOG 429. Urban Political Geography: Durham, NC. 3 Credits.
An interdisciplinary exploration of urban social problems, bridging the literature on urban geography with that on urban politics. Students will be required to complete 30 hours of service for an organization that works on an urban social issue.
Gen Ed: SS, EE- Service Learning.
Grading status: Letter grade.

GEOG 430. Global Migrations, Local Impacts: Urbanization and Migration in the United States. 3 Credits.
This course explores the relationship between patterns of urban development in the United States and migration, in both historical and contemporary contexts.
Gen Ed: SS, NA.
Grading status: Letter grade.

GEOG 435. Environmental Politics. 3 Credits.
This course brings geographical perspectives on place, space, scale, and environmental change to the study of environmental politics. In lectures, texts, and student research, students examine topics including environmental health risks, globalization and urban environments, and the role of science in environmental politics. (GHA)
Gen Ed: NA.
Grading status: Letter grade.

GEOG 436. Governance, Institutions, and Global Environmental Change. 3 Credits.
Interdisciplinary course for advanced undergraduates and graduate students. Focuses on multiscale environmental issues and related social, institutional, governance, and policy challenges. Examines key concepts and theories involving global environmental change and problem-solving efforts.
Gen Ed: GL.
Grading status: Letter grade.

GEOG 437. Social Vulnerability to Climate Change. 3 Credits.
How does climate change affect vulnerable human populations? We will attempt to answer a shared research question on this topic by reading the peer-reviewed literature and by conducting a semester-long data analysis project incorporating social and climate data from around the world. This is a course-based undergraduate research experience (CURE).
Gen Ed: EE- Mentored Research, GL.
Grading status: Letter grade
Same as: ENEC 437.

GEOG 440. Earth Surface Processes. 3 Credits.
This course will focus on the processes of soil formation, erosion, and landform evolution with an emphasis on the interaction of geomorphic processes with surface hydrology and ecosystems. (EES)
Requisites: Prerequisite, GEOG 110.
Gen Ed: PL.
Grading status: Letter grade
Same as: GEOL 502.

GEOG 441. Introduction to Watershed Systems. 3 Credits.
Introduction to hydrologic and geomorphic processes in watersheds as applied to problems in flood analysis, water quality, and interactions of hydrology and environmental sciences. Drainage networks, nested catchments, and distribution and controls of precipitation, evaporation, runoff, and groundwater flow. Includes local field trips. (EES)
Requisites: Prerequisite, ENEC 202 or GEOG 110; permission of the instructor for students lacking the prerequisite.
Gen Ed: PL, EE- Field Work.
Grading status: Letter grade.

GEOG 442. River Processes. 3 Credits.
Introduction to landforms and processes associated with flowing water at the earth's surface. Hydrology, sedimentology, and theories of channel formation and drainage basin evolution. (ESS)
Grading status: Letter grade.

GEOG 444. Landscape Biogeography. 3 Credits.
This course is concerned with the application of biogeographical principles and techniques to the study of natural and human-modified landscapes. It includes local and extraregional case studies. (EES)
Grading status: Letter grade.

GEOG 446. Geography of Health Care Delivery. 3 Credits.
This course examines the role that geography plays in shaping how people interact with the health care system. Topics include health care delivery system types, facility and personnel distributions, access to care, health care utilization, as well as GIS, spatial analysis, and decision support systems.
Grading status: Letter grade.

GEOG 447. Gender, Space, and Place in the Middle East. 3 Credits.
Examines gender, space, and place relationships in the modern Middle East. Investigates shifting gender geographies of colonialism, nationalism, modernization, and globalization in this region. (GHA)
Grading status: Letter grade
Same as: ASIA 447, WGST 447.

GEOG 448. Transnational Geographies of Muslim Societies. 3 Credits.
Examines modern Muslim geographies that are created by transnational flows, connections, and imaginaries that cross national and regional boundaries across the Middle East, Southeast Asia, and beyond.
Grading status: Letter grade.

GEOG 451. Population, Development, and the Environment. 3 Credits.
Introduction to contemporary and historical changes in human population, international development, and the global environment and how these processes interact, drawing on population geography as an organizing framework. Previously offered as GEOG 450.
Gen Ed: GL.
Grading status: Letter grade
Same as: ENEC 451.

GEOG 452. Mobile Geographies: The Political Economy of Migration. 3 Credits.
This course explores the contemporary experience of migrants. Various theoretical approaches are introduced, with the emphasis on a political-economic approach. (GHA)
Gen Ed: EE- Field Work, GL.
Grading status: Letter grade.

GEOG 453. Political Geography. 3 Credits.
The geography of politics is explored at the global, the nation-state, and the local scale in separate course units, but the interconnections between these geographical scales are emphasized throughout. (GHA)
Gen Ed: GL.
Grading status: Letter grade
Same as: PWAD 453.

GEOG 456. Geovisualizing Change. 3 Credits.
This course investigates the challenges, tools and techniques, and important applications of visualizing and analyzing geographic data that is temporally dynamic. We tackle technical challenges in obtaining, analyzing, and visualizing dynamic processes in space though maps, and discuss the consequences of our choices in how to re/present these processes. Students will produce original geovisualizations of dynamic data related to their field. Recommended preparation: experience with GIS software (GEOG 370 or GEOG 491).
Requisites: Prerequisite, GEOG 370; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

GEOG 457. Rural Latin America: Agriculture, Environment, and Natural Resources. 3 Credits.
This course explores a systems and cultural-ecological view of agriculture, environment, natural resource, and rural development issues in Latin America. It serves as a complement to GEOG 458 Urban Latin America. (Regional)
Grading status: Letter grade.

GEOG 458. Urban Latin America: Politics, Economy, and Society. 3 Credits.
This course examines urban social issues in contemporary Latin America. Cities and their residents will be considered in relation to each other and to North American examples. (Regional)
Requisites: Prerequisite, GEOG 259; permission of the instructor for students lacking the prerequisite.
Gen Ed: BN.
Grading status: Letter grade.

GEOG 460. Geographies of Economic Change. 3 Credits.
This course is designed to explore changing geographies of production and consumption in theory and in practice.
Grading status: Letter grade.

GEOG 464. Europe Today: Transnationalism, Globalisms, and the Geographies of Pan-Europe. 3 Credits.
A survey by topic and country of Europe west of Russia. Those features that make Europe a distinct and important region today are emphasized. (Regional)
Gen Ed: NA.
Grading status: Letter grade.

GEOG 470. Political Ecology: Geographical Perspectives. 3 Credits.
Examines foundational concepts and methods and their relevance for understanding nature-society relationships. Discussions on environmental change and conflict and how nature is bound up with relations of power and constructions of identity.
Gen Ed: SS, GL.
Grading status: Letter grade.

GEOG 477. Introduction to Remote Sensing of the Environment. 3 Credits.
Covers fundamental theory and mechanics of remote sensing, related theoretical aspects of radiation and the environment, and remote-sensing applications relating to terrestrial, atmospheric, and marine environments. Hands-on experience for application and information extraction from satellite-based imagery through biweekly laboratory assignments. Prepares students for GEOG 577. (GISc)
Requisites: Prerequisite, GEOG 370.
Grading status: Letter grade.

GEOG 480. Liberation Geographies: The Place, Politics, and Practice of Resistance. 3 Credits.
An examination of the theory and history of resistance in the modern world, including instances of contestation from 'foot dragging' to the formation of social movements, and exploring the relationship between place and protest.
Gen Ed: SS, GL.
Grading status: Letter grade.

GEOG 491. Introduction to GIS. 3 Credits.
Stresses the spatial analysis and modeling capabilities of organizing data within a geographic information system. (GISci)
Requisites: Prerequisite, GEOG 370; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: PLAN 491.

GEOG 493. Internship. 3 Credits.
Open to junior and senior geography majors. Geography internships combine substantive geographic work experience with an academic project designed to integrate theory and practice. Field work is included.
Gen Ed: EE- Academic Internship.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

GEOG 541. GIS in Public Health. 3 Credits.
Explores theory and application of geographic information systems (GIS) for public health. The course includes an overview of the principles of GIS in public health and practical experience in its use. (GISci)
Grading status: Letter grade.

GEOG 542. Neighborhoods and Health. 3 Credits.
This course explores how neighborhood context influences the health of the populations living in them. It includes a survey of neighborhoods and health theory and empirical examples. (GHA)
Grading status: Letter grade.

GEOG 543. Qualitative Methods in Geography. 3 Credits.
This course teaches qualitative methods in geography for graduate and advanced undergraduate students. We will cover interviews, focus groups, visual, and other methodologies. We will also discuss modes of analysis, coding, and writing up qualitative research for publication.
Gen Ed: SS, CI.
Grading status: Letter grade.

GEOG 544. Geographic Information Systems for Impact Evaluation. 3 Credits.
Examines the theory and application of geographic information systems (GIS) for impact evaluation for intervention studies. The course will focus especially on health and economic interventions in the developing world. The course includes an overview of the principles of GIS in impact evaluation and practical experience in its use.
Grading status: Letter grade.

GEOG 567. Digital Image Processing with Google Earth Engine. 3 Credits.
This is a course that teaches students the key concepts and skills to use the rich resources on Google Earth Engine for satellite image processing for environmental monitoring, mapping, modeling, and visualization. This course will help students overcome the conventional limitation of a personal computer to pursue remote sensing projects with limited spatial and temporal scope. Students will experience the power of cloud storage and computing for remote sensing of the environment.
Gen Ed: PL, QI.
Grading status: Letter grade.

GEOG 577. Advanced Remote Sensing. 3 Credits.
Acquisition, processing, and analysis of satellite digital data for the mapping and characterization of land cover types. (GISci)
Requisites: Prerequisite, GEOG 370 or 477.
Grading status: Letter grade.

GEOG 591. Applied Issues in Geographic Information Systems. 3 Credits.
Applied issues in the use of geographic information systems in terrain analysis, medical geography, biophysical analysis, and population geography. (GISci)
Requisites: Prerequisite, GEOG 370, 491, or equivalent.
Grading status: Letter grade.

GEOG 592. Geographic Information Science Programming. 3 Credits.
This course will teach students the elements of GISci software development using major GIS platforms. Students will modularly build a series of applications through the term, culminating in an integrated GIS applications program.
Requisites: Prerequisite, GEOG 370 or 491.
Grading status: Letter grade.

GEOG 594. Global Positioning Systems and Applications. 3 Credits.
Global Positioning Systems (GPS) fundamental theory, application design, post processing, integration of GPS data into GIS and GPS application examples (such as public health, business, etc.) will be introduced.
Requisites: Prerequisite, GEOG 370.
Grading status: Letter grade.

GEOG 597. Ecological Modeling. 3 Credits.
This course focuses on modeling the terrestrial forest ecosystems processes, including population dynamics, energy, water, nutrients, and carbon flow through the ecosystem. (GISci)
Requisites: Prerequisite, BIOL 561 or STOR 455; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

GEOG 598. GIS and Systems Modeling. 3 Credits.
GIS and Systems Modeling are theory and methodology that use GIS, quantitative models, and systems analysis to describe processes, interactions, and feedbacks in complex systems. Simulation experiments of systems models can be used as a "laboratory" to answer many "what if" questions, which can be used for the evaluation of policies and scenarios.
Requisites: Prerequisite, GEOG 370 or 491.
Grading status: Letter grade.

GEOG 650. Technology and Democracy Research. 3 Credits.
Are technological choices open to democratic participation? Through a novel research workshop format, this graduate and undergraduate course explores political and geographical dimensions of technological change around key environmental issues--energy, water, and waste.
Gen Ed: SS, CI, EE- Service Learning.
Grading status: Letter grade.

GEOG 691H. Honors. 3 Credits.
By permission of the department. Required of all students aspiring to honors in geography. Directed readings, research, and writing.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

GEOG 692H. Honors. 3 Credits.
Required of all students aspiring to honors in geography. Preparation of a senior thesis.
Requisites: Prerequisite, GEOG 691H.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

GEOG 697. Capstone Seminar in Geographic Research. 3 Credits.
A systematic study of the approaches, key concepts, and methods of geography, emphasizing the application of these approaches through hands-on independent research designed and implemented by the students. (Core)
Grading status: Letter grade.

Graduate-level Courses

GEOG 702. Contemporary Geographic Thought. 3 Credits.
History and philosophy of the geographic discipline, with particular emphasis on developments in recent decades.
Grading status: Letter grade.

GEOG 703. Geographic Research Design. 3 Credits.
Introduction to the theory and practice of geographic research. The range of methods available for problem identification and solution are considered through development of specific research proposals.
Grading status: Letter grade.

GEOG 704. Communicating Geography. 3 Credits.
Seminar introduces new students to current geographic sub-disciplines, faculty research interests and areas of expertise within the Department, and university resources. In this required core course in Geography's graduate curriculum, students also engage with issues of communication, professionalization, and career development in Geography and related fields.
Grading status: Letter grade.

GEOG 705. Advanced Quantitative Methods in Geography. 3 Credits.
Application of selected multivariate statistical techniques to the analysis of geographic phenomena and problems.
Grading status: Letter grade.

GEOG 706. Demographic Methods. 3 Credits.
This is an introductory course in demographic research methods. Common methods for measuring demographic indicators (fertility, mortality, migration, population growth, and marriage) will be presented.
Grading status: Letter grade.

GEOG 710. Advanced Physical Geography - Biogeoscience. 3 Credits.
Examination of the major processes controlling environmental cycling of material and energy at the landscape level, and development of a quantitative understanding of the physical and ecosystem processes responsible for landscape pattern and evolution.
Grading status: Letter grade.

GEOG 711. Advanced Physical Geography - Hydroclimatology and Bioclimatology. 3 Credits.
Examination of topics focused on the atmospheric and the vegetation and land surface parts of the hydrologic cycle at the micro to global spatial scale and short-term to millennial temporal scale.
Grading status: Letter grade.

GEOG 715. 715 Land Use/Land Cover Dynamics and Human-Environment Interaction. 3 Credits.
Examination of topics that integrate social, natural, and spatial sciences within the context of human-environment interactions, with an emphasis on landuse/landcover dynamics and spatial digital technologies for linking landscape form and function.
Grading status: Letter grade.

GEOG 720. Cultural and Political Ecology. 3 Credits.
This course examines the foundations and current literature on cultural and political ecology. Focus is given to the appropriation of "Nature," degradation and deforestation, conservation, famine, postcolonial peasants, resistance, Indigeneit, and property, land distribution, and governmentality.
Grading status: Letter grade.

GEOG 760. Geographies of Economic Change. 3 Credits.
This course is designed to explore changing geographies of production and consumption in theory and in practice.
Grading status: Letter grade.

GEOG 790. Spatial Analysis and Computer Modeling. 3 Credits.
This course introduces students to spatial analysis techniques involving points, lines, areas, surfaces, and non-metric spaces, as well as programming basic geographic models on microcomputers.
Grading status: Letter grade.

GEOG 801. Research Seminar in Earth System Science and Biophysical Geography. 3 Credits.
An in-depth seminar devoted to contemporary faculty research topics in earth system science and biophysical geography. Topics and instructors vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

GEOG 802. Research Seminar in Geographic Information Sciences. 3 Credits.
An in-depth seminar devoted to contemporary faculty research topics in geographic information sciences. Topics and instructors vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

GEOG 803. Research Seminar in Nature-Society Studies and Human-Environment Interactions. 3 Credits.
An in-depth seminar devoted to contemporary faculty research topics in nature-society studies and human-environment interactions. Topics and instructors vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

GEOG 804. Research Seminar in Social Geography. 3 Credits.
An in-depth seminar devoted to contemporary faculty research topics in social geography. Topics and instructors vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

GEOG 805. Research Seminar in International Area Studies, Development, and Globalization. 3 Credits.
An in-depth seminar devoted to contemporary faculty research topics in international area studies, development, and globalization. Topics and instructors vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

GEOG 811. Seminar/Readings in Earth System Science and Biophysical Geography. 3 Credits.
An in-depth seminar devoted to contemporary readings in earth system science and biophysical geography. Topics and instructors vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

GEOG 812. Seminar/Readings in Geographic Information Sciences. 3 Credits.
An in-depth seminar devoted to contemporary readings in geographic information sciences. Topics and instructors vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

GEOG 813. Seminar/Readings in Nature-Society Studies and Human-Environment Interactions. 3 Credits.
An in-depth seminar devoted to contemporary readings in nature-society studies and human-environment interactions. Topics and instructors vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

GEOG 814. Seminar/Readings in Social Geography. 3 Credits.
An in-depth seminar devoted to contemporary readings in social geography. Topics and instructors vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

GEOG 815. Seminar/Readings in International Area Studies, Development, and Globalization. 3 Credits.
An in-depth seminar devoted to contemporary readings in international area studies, development, and globalization. Topics and instructors vary.
Grading status: Letter grade.

GEOG 900. Special Work in Geography. 1-21 Credits.
Required preparation, two courses in the one hundred bracket or permission of the instructor.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

GEOG 993. Master's Research and Thesis. 3 Credits.

GEOG 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF GEOLOGICAL SCIENCES (GRAD)

Contact Information

Department of Geological Sciences
Visit Program Website (http://geosci.unc.edu)

Drew Coleman, Chair
dcoleman@unc.edu

The Department of Geological Sciences offers programs leading to the M.S. and Ph.D. degrees in geological sciences. A broad background is offered in most major areas of geoscience, with particular emphasis on hydrology, coastal processes, isotope geochemistry, geochronology, seismology, volcanology, igneous petrology, marine geology, low-temperature geochemistry, paleoclimatology, paleoceanography, paleontology, paleoecology, sequence stratigraphy, structural geology, earth surface processes, and tectonics.

Admission and General Degree Requirements

Students admitted to pursue a graduate degree in the Department of Geological Sciences normally are expected to have an undergraduate degree in traditional geology, geochemistry, geophysics, biology, chemistry, mathematics, physics, or other related interdisciplinary fields. All applicants must take the Graduate Record Examination (GRE). All foreign students whose native language is not English also must take the Test of English as a Foreign Language (TOEFL) examination.

Course requirements for incoming students will be determined by individual graduate committees, often in consultation with the director of graduate studies. Specific requirements are varied to meet the needs and career objectives of the individual.

Facilities and Research Interests

The Department of Geological Sciences occupies the 50,000 square feet of floor space in Elisha Mitchell Hall. Research equipment and facilities include two thermal ionization mass spectrometers with associated Class 100 clean labs; high-resolution laser ablation ICPMS; quadrupole ICPMS; a sediment analysis laboratory including refrigerated core storage; an X-ray fluorescence core scanner and a laser-size particle analyzer; X-ray fluorescence spectrometer; X-ray diffractometer; field-emission electron microprobe (at Fayetteville State University, remotely operable); scanning electron microscope with X-ray analysis and cathodoluminescence; counting laboratory (alpha-, beta-, and gamma-emitting radionuclides); experimental petrology laboratory; gas chromatograph-isotope ratio mass spectrometer (in Marine Sciences); chirp sonar and side-scan sonar imaging systems; seismic reflection system; microsampling system with epifluorescence capabilities. The Department excels in advanced computational methods, and numerous high-end workstation facilities are available, including CPU-enhanced parallel processors and 4K visualization displays. Through RENCI (Renaissance Computing Institute) researchers can access, for instance, HPC and visualization to model coastal storm surge; software and cyber tools for interoperability and sharing of hydrology data and models and supercomputer clusters, such as Hatteras, a 5168-core cluster running CentOS Unix, and Blue Ridge, a 160-node cluster with a 40Gbit MPI interconnect and 20TB shared system. RENCI's visualization includes a Social Computing Room, a 24'x24' room that utilizes three projectors per wall, capable of visualizing at 9.5 million pixels.

Financial Aid

Approximately 11 teaching assistantships with stipends of $16,000 to $17,000 per academic year (2019–2020 stipends) are available to graduate students. In addition, all graduate students are eligible to apply for departmental summer fellowships, research funds, and conference funds ($1,000 to $7,000 per award in 2019–2020) from a departmental endowment.

The department nominates three students to be considered by The Graduate School for nonservice fellowships; no additional application is necessary. Faculty research grants support some research assistantships. Out-of-state students are recommended for remission of out-of-state tuition costs; all students are recommended for an in-state tuition award. Most students are eligible for both and therefore are responsible only for the payment of student fees.

Master of Science

Requirements for the master of science degree are 30 semester hours (including a minimum of three hours, but no more than six hours of GEOL 993), a thesis, and a final oral examination in defense of the thesis.

Doctor of Philosophy

Many students have completed a master's degree before being admitted to the doctoral program, but some students enter the Ph.D. program having completed only an undergraduate degree. Students admitted to the M.S. program who elect to pursue a Ph.D. instead may be permitted to bypass the master's degree after one semester of residence upon demonstration of superior scholastic performance and research potential. Recommendation by the student's graduate committee and approval by the geological sciences faculty is required in this case.

Admission to the Ph.D. program after completing the M.S. degree in the Department of Geological Sciences requires faculty approval.

Requirements for the Ph.D. degree are a minimum of 48 semester hours of graduate credit (which may include 30 hours from the M.S. degree) and a minimum of six hours and preferably no more than 12 hours of GEOL 994, a written comprehensive examination and an oral comprehensive examination, a dissertation, and a final oral examination in defense of the dissertation.

Professors

Larry K. Benninger, Low-Temperature Geochemistry
Drew S. Coleman, Isotope Geochemistry, Geochronology
Allen F. Glazner, Igneous Petrology, Tectonics
Jonathan M. Lees, Seismology, Volcanology
Jose A. Rial, Geophysics, Climatology
Donna M. Surge, Paleoclimate, Paleoecology, Low-Temperature Geochemistry

Associate Professors

Laura J. Moore, Coastal Geology
Tamlin M. Pavelsky, Global Hydrology
Kevin G. Stewart, Structural Geology

Assistant Professors

Xiaoming Liu, Geochemistry

Associated Faculty

John M. Bane Jr., Physical Oceanography
Christopher S. Martens, Chemical Oceanography

Adjunct Appointments

Alan E. Boudreau, Petrology, Geochemistry
Antonio Rodriguez, Coastal Geology, Sedimentology

Professors Emeriti

Joseph G. Carter
Paul Fullagar
Daniel A. Textoris

GEOL

Advanced Undergraduate and Graduate-level Courses

GEOL 403. Oceanography. 3 Credits.
Required preparation, major in a natural science or two courses in natural sciences. Studies origin of ocean basins, seawater chemistry and dynamics, biological communities, sedimentary record, and oceanographic history. Term paper. Students lacking science background should see MASC 101. Students may not receive credit for both MASC 101 and MASC 401.
Grading status: Letter grade
Same as: MASC 401, BIOL 350, ENVR 417.

GEOL 405. Geochemistry. 3 Credits.
Required preparation, one introductory geology course. Introduction to the application of chemical principles to geological problems. Topics include thermodynamics, kinetics, and isotope geochemistry. Previously offered as GEOL 512/MASC 553.
Requisites: Prerequisites, CHEM 102 and MATH 231; permission of the instructor for students lacking the prerequisites.
Gen Ed: QI.
Grading status: Letter grade
Same as: MASC 455.

GEOL 406. Introduction to Geophysics. 3 Credits.
Introduction to the fundamentals of global geophysics: gravity, seismology, magnetism, heat, and plate tectonics. Both shallow and deep processes are considered. Emphasis is aimed at problem solving by applying concepts. Previously offered as GEOL 515.
Requisites: Prerequisites, PHYS 114, 116, or 118, and 115, 117, or 119.
Grading status: Letter grade.

GEOL 410. Earth Processes in Environmental Systems. 4 Credits.
Principles of geological and related Earth systems sciences are applied to analyses of environmental phenomena. The link between the lithosphere and other environmental compartments is explored through case studies of environmental issues. Three lecture hours and one laboratory hour a week.
Requisites: Prerequisites, CHEM 102, GEOL 200, MATH 231, and PHYS 115 or 119; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: ENEC 410, MASC 410.

GEOL 411. Oceanic Processes in Environmental Systems. 4 Credits.
Principles of analysis of the ocean, coast, and estuarine environments and the processes that control these environments are applied to the analysis of environmental phenomena. Case studies of environmental issues. Three lecture hours and one laboratory hour a week.
Requisites: Prerequisites, BIOL 101, CHEM 102, ENEC 222, MATH 231, PHYS 115 or 119; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: ENEC 411, MASC 411.

GEOL 412. Principles and Methods of Teaching Earth Science. 4 Credits.
Required preparation, any introductory geology course. This course develops the knowledge and skills teachers need to implement inquiry-based earth science instruction: conceptual knowledge of earth sciences and mastery of inquiry instructional methods. Students study inquiry in cognitive science and learning theory. This course is a requirement for the UNC-BEST program in geological sciences.
Gen Ed: EE- Service Learning.
Grading status: Letter grade.

GEOL 415. Environmental Systems Modeling. 3 Credits.
This course explores principles and strategies for studying environmental phenomena, and presents methods for developing explanatory and predictive models of environmental systems, e.g., predator-prey, estuaries, greenhouse gases, and ecosystem material cycles.
Requisites: Prerequisite, MATH 383; pre- or corequisite, PHYS 115 or 118, and COMP 116.
Grading status: Letter grade
Same as: ENEC 415, MASC 415.

GEOL 417. Geomorphology. 3 Credits.
Introduction to process geomorphology with emphasis on quantitative interpretation of weathering, hill slope, fluvial, glacial, and eolian processes from topography and landscapes.
Requisites: Prerequisites, GEOL 101, 200, or 201; and MATH 231; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: ENEC 417.

GEOL 417L. Geomorphology Laboratory. 1 Credit.
Two laboratory hours per week.
Requisites: Pre- or corequisite, GEOL 417.
Grading status: Letter grade.

GEOL 421. Archaeological Geology. 3 Credits.
Permission of the instructor. The application of geological principles and techniques to the solution of archaeological problems. Studies geological processes and deposits pertinent to archaeological sites, geologic framework of archaeology in the southeastern United States, and techniques of archaeological geology. Field trips to three or more sites; written reports required.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: ANTH 421.

GEOL 422. Physics of the Earth's Interior. 3 Credits.
Origin of the solar system: the nebular hypothesis. Evolution of the earth and its accretionary history. Earthquakes: plate tectonics and the interior of the earth. The earth's magnetic field. Mantle convection.
Requisites: Prerequisites, MATH 383, and either PHYS 201 and 211 or 311 and 401.
Grading status: Letter grade
Same as: PHYS 422.

GEOL 425. Introduction to Field Geology. 3 Credits.
Introduction to geologic field methods. Includes making observations, mapping, identification of structures and features, and interpretation to solve basic geologic problems. Many field trips. Previously offered as GEOL 225.
Requisites: Prerequisites, GEOL 302, 303, and 304; permission of the instructor for students lacking the prerequisites.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

GEOL 432. Paleoclimatology. 3 Credits.
Introduction to mechanisms that drive climate. Examination of past climate reconstructions using ecological and geochemical proxies. Utility of computer models to reconstruct past climates and predict future climate change. Emphasis placed on late Quaternary.
Requisites: Prerequisite, GEOL 202 or 303; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

GEOL 433. Paleoceanography. 3 Credits.
Origin and distribution of pelagic sediments. Review of the major Mesozoic and Cenozoic events in the world oceans. Glacial/interglacial changes in the ocean/atmosphere system.
Requisites: Prerequisite, GEOL 303 or 503; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

GEOL 435. Groundwater. 3 Credits.
Required preparation, one introductory geology course. Introduction to physics, chemistry, and geology of groundwater. Previously offered as GEOL 509.
Requisites: Prerequisites, CHEM 102; MATH 231; PHYS 104 or 114 or 116; permission of the instructor for students lacking the prerequisites.
Gen Ed: QI.
Grading status: Letter grade.

GEOL 436. Geochemistry of Natural Waters. 3 Credits.
Required preparation, one introductory geology course. Survey of processes affecting the compositions of streams, lakes, the ocean, and shallow ground waters. Previously offered as GEOL 510.
Requisites: Prerequisites, CHEM 102 and MATH 231; permission of the instructor for students lacking the prerequisites.
Gen Ed: QI.
Grading status: Letter grade.

GEOL 440. Principles of Seismology. 3 Credits.
Descriptive account of global seismology, earthquake distribution, and focal mechanics. Principles of geometrical optics and applications to imaging the earth's interior. Principles of seismic prospecting of hydrocarbon and geothermal reservoirs.
Requisites: Prerequisites, GEOL 200, 302; MATH 231; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

GEOL 450. Biogeochemical Processes. 4 Credits.
Principles of chemistry, biology, and geology are applied to analysis of the fate and transport of materials in environmental systems, with an emphasis on those materials that form the most significant cycles. Three lecture hours and one laboratory hour a week.
Requisites: Prerequisites, MATH 231, and PHYS 114 or 118; permission of the instructor for students lacking the prerequisites.
Gen Ed: PL.
Grading status: Letter grade
Same as: ENEC 450, MASC 450.

GEOL 460. Fluid Dynamics of the Environment. 3 Credits.
Principles and applications of fluid dynamics to flows of air and water in the natural environment. Conservation of momentum, mass, and energy applied to lakes, rivers, estuaries, and the coastal ocean. Dimensional analysis and scaling emphasized to promote problem-solving skills.
Requisites: Prerequisite, MATH 232; permission of the instructor for students lacking the prerequisite.
Gen Ed: QI.
Grading status: Letter grade.

GEOL 480. Modeling of Marine and Earth Systems. 1-3 Credits.
Mathematical modeling of dynamic systems, linear and nonlinear. The fundamental budget equation. Case studies in modeling transport, biogeochemical processes, population dynamics. Analytical and numerical techniques; chaos theory; fractal geometry.
Requisites: Prerequisite, MATH 232; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: MASC 480, ENVR 480.

GEOL 483. Geologic and Oceanographic Applications of Geographical Information Systems. 4 Credits.
Required preparation, four GEOL courses or permission of the instructor. Focus is on applying GIS concepts and techniques to mining and petroleum geology, resource assessment, hydrogeology, coastal and marine geology, physical oceanography, engineering geology, and a geologic perspective on land use. Three lecture and two laboratory hours a week.
Grading status: Letter grade
Same as: MASC 483.

GEOL 485. Summer Field Course in Geology. 3 Credits.
Three-week field camp conducted in the western United States (Arizona, California, Colorado, Nevada, New Mexico, and/or Utah). Learn proper use of geology field tools and how to make a geologic map. Field interpretation of rocks and their deformation. Previously offered as GEOL 601.
Requisites: Prerequisites, GEOL 302, 303, and 304; permission of the instructor for students lacking the prerequisites.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

GEOL 486. Summer Field Course in Geology. 3 Credits.
Three-week field camp conducted in the western United States (Arizona, California, Colorado, Nevada, New Mexico, and/or Utah). Learn advanced mapping skills necessary to interpret geologic history of complexly deformed rocks. Previously offered as GEOL 602.
Requisites: Prerequisites, GEOL 302, 303, and 304; permission of the instructor for students lacking the prerequisites.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

GEOL 490. Topics in Earth and Environmental Sciences. 3 Credits.
Key topics and resources for high school teachers preparing to teach earth and environmental sciences. Includes lithosphere, tectonic processes, hydrosphere, atmosphere, origin of solar system and life, and environmental stewardship.
Grading status: Letter grade.

GEOL 501. Geological Research Techniques. 3 Credits.
Permission of the instructor. Theory and practice of analytical methods in geochemistry including X-ray diffraction, X-ray fluorescence, and scanning electron microscopy; introduction to electronics.
Grading status: Letter grade.

GEOL 502. Earth Surface Processes. 3 Credits.
This course will focus on the processes of soil formation, erosion, and landform evolution with an emphasis on the interaction of geomorphic processes with surface hydrology and ecosystems. (EES)
Requisites: Prerequisite, GEOG 110.
Gen Ed: PL.
Grading status: Letter grade
Same as: GEOG 440.

GEOL 503. Marine Geology. 4 Credits.
For graduate students; undergraduates need permission of the instructor. Investigates formation of the oceans, plate tectonics, carbonate reefs and platforms, sediment transport from the land to deep-sea fans, glacial-marine geology, marine records of changes in sea level and climate, and the evolution of barrier islands, estuaries, and deltas. Mandatory weekend field trip to the Southern Outer Banks.
Gen Ed: PL.
Grading status: Letter grade
Same as: MASC 503.

GEOL 504. Advanced Petrology. 3 Credits.
Origin of magmas and evolution of igneous and metamorphic rocks, combined with petrographic study of selected sites.
Requisites: Prerequisite, GEOL 304.
Grading status: Letter grade.

GEOL 505. Chemical Oceanography. 4 Credits.
Graduate students only; undergraduates must have permission of the instructor. Overview of chemical processes in the ocean. Topics include physical chemistry of seawater, major element cycles, hydrothermal vents, geochemical tracers, air-sea gas exchange, particle transport, sedimentary processes, and marine organic geochemistry. Three lecture and two recitation hours per week.
Gen Ed: PL.
Grading status: Letter grade
Same as: MASC 505, ENVR 505.

GEOL 506. Physical Oceanography. 4 Credits.
For graduate students; undergraduates need permission of the instructor. Descriptive oceanography, large-scale wind-driven and thermohaline circulations, ocean dynamics, regional and nearshore/estuarine physical processes, waves, tides. Three lecture and one recitation hour per week.
Gen Ed: PL.
Grading status: Letter grade
Same as: MASC 506.

GEOL 508. Global Hydrology. 3 Credits.
An introduction to methodologies and instrumentation for quantifying the movement of water in the earth system focusing on components of the hydrologic cycle.
Requisites: Prerequisites, GEOL/ENEC 324 and MATH 231; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

GEOL 511. Stable Isotopes in the Environment. 3 Credits.
Introduction to the theory, methods, and applications of stable isotopes to environmental problems. Primary focus will be on the origin, natural abundance, and fractionation of carbon, hydrogen, oxygen, and nitrogen isotopes.
Requisites: Prerequisite, CHEM 102.
Grading status: Letter grade
Same as: ENEC 511.

GEOL 514. River Systems of East Coast North America. 3 Credits.
Required preparation, one introductory geology course. Junior or senior status. Analysis of 23 rivers from St. Lawrence to the Everglades, from headwaters to oceanic terminus of turbidite fan. Focus on stream processes, geologic development, hydrology, utilization history, ecology, and planning.
Requisites: Prerequisite, GEOL 417.
Grading status: Letter grade.

GEOL 517. Sequence and Seismic Stratigraphy. 3 Credits.
Examination of lithostratigraphic principles and the sequence stratigraphic paradigm. Students will study use of variation of well log signature reflection attributes and reflection termination patterns to identify and correlate sequences and systems and to interpret the lithology and depositional history of subsurface stratigraphic units.
Requisites: Prerequisite, GEOL 303.
Grading status: Letter grade.

GEOL 518. Geodynamics. 3 Credits.
Required preparation, one introductory geology course. Interior of the earth deduced from seismology, gravity, heat flow, magnetism; geophysics of continents and ocean basins; age of earth.
Requisites: Prerequisites, CHEM 102; MATH 232; and PHYS 104 and 105, or 114 and 115.
Grading status: Letter grade.

GEOL 520. Data Analysis in the Earth Sciences. 3 Credits.
Required preparation, an introductory geology course numbered below 202, except first-year seminar, or permission of the instructor. Introduction to quantitative analysis in earth sciences: solid earth, atmospheres, oceans, geochemistry, and paleontology. Topics covered: univariate and multivariate statistics, testing, nonparametric methods, time series, spatial and cluster analysis, shapes.
Requisites: Prerequisites, MATH 231 and 232.
Grading status: Letter grade.

GEOL 521. Clastic Depositional Systems: Processes and Products. 3 Credits.
Examination of the use of lateral and vertical changes in sedimentary facies to identify depositional processes and environments of deposition within the terrestrial, marginal marine, shelf, and deep sea clastic depositional systems. These systems will be examined in a sequence stratigraphic framework.
Requisites: Prerequisite, GEOL 303.

GEOL 522. Physical Volcanology. 3 Credits.
Required preparation, introductory courses in geology and physics. Course is aimed at understanding the physical properties and processes controlling volcanism and magma transport. Topics covered include volcanic processes from the formation of magma in the upper mantle to violent eruption at the surface. Emphasizes dynamic processes and underlying mechanisms.
Grading status: Letter grade.

GEOL 523. Petroleum Geoscience. 4 Credits.
Students study the origin, migration, and entrapment of hydrocarbons in sedimentary basins and learn how several areas of the geosciences are integrated to locate and produce hydrocarbons. Students learn about these topics while analyzing a real subsurface data set.
Requisites: Prerequisites, GEOL 302 and 303; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

GEOL 525. Inverse Theory: Advanced Data Analysis and Geophysical Modeling. 3 Credits.
The course deals with earth science problems related to extracting model parameters from data and field observations. Details of mathematical concepts, real world examples, and practical applications associated with noisy or incomplete data are covered. Key concepts include multivariate regression, model discretization, Tikhonov regularization, and Bayesian methods.
Grading status: Letter grade.

GEOL 550. Biogeochemical Cycling. 3 Credits.
Biogeochemical cycling explores interfaces of marine, aquatic, atmospheric, and geological sciences emphasizing processes controlling chemical distributions in sediments, fresh and salt water, the atmosphere, and fluxes among these reservoirs.
Requisites: Prerequisites, ENVR 421; GEOL 405, 436, 655; MASC 440, 505; or permission of the instructor.
Gen Ed: PL, CI.
Grading status: Letter grade
Same as: MASC 550.

GEOL 552. Organic Geochemistry. 3 Credits.
Recommended preparation, CHEM 261 or MASC 505, and one additional ENVR, GEOL, or MASC course above 400. Sources, transformations, and fate of natural organic matter in marine environments. Emphasis on interplay of chemical, biological, and physical processes that affect organic matter composition, distribution, and turnover.
Gen Ed: PL.
Grading status: Letter grade
Same as: MASC 552, ENVR 552.

GEOL 555. Paleobotany: An Introduction to the Past History of Plants. 3 Credits.
An introduction to the fossil record of plants, investigating how plants originated and changed through geological time to produce the modern flora. Both macrofossils and microfossils will be considered. Three lecture hours a week.
Requisites: Prerequisites, BIOL 202, and one other BIOL course above 200; corequisite, BIOL 555L; permission of the instructor for students lacking the requisites.
Gen Ed: EE- Field Work.
Grading status: Letter grade
Same as: BIOL 555.

GEOL 560. Fluid Dynamics. 3 Credits.
The physical properties of fluids, kinematics, governing equations, viscous incompressible flow, vorticity dynamics, boundary layers, irrotational incompressible flow.
Requisites: Prerequisite, PHYS 401; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: MASC 560, ENVR 452, PHYS 660.

GEOL 563. Descriptive Physical Oceanography. 3 Credits.
Observed structure of the large-scale and mesoscale ocean circulation and its variability, based on modern observations. In-situ and remote sensing techniques, hydrographic structure, circulation patterns, ocean-atmosphere interactions.
Requisites: Prerequisite, MASC 506; permission of the instructor for students lacking the prerequisite.
Gen Ed: PL.
Grading status: Letter grade
Same as: MASC 563.

GEOL 567. Application of Plasma Mass Spectrometry in Earth and Environmental Sciences. 3 Credits.
This class is an introduction to one of the state-of-the-art analytical techniques in geological and environmental research - the ICP-MS (Inductively Coupled Plasma - Mass Spectrometry). Students will have hands-on experiences with ICP-MS sample preparation and analysis, and they will design their own hypothesis-driven research projects to analyze major and trace elements in geological and environmental samples including water, rock, and soil.
Requisites: Prerequisite, GEOL 101, 200, or 201.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

GEOL 580. Evolution of Earth's Surface Environment. 3 Credits.
The course combines geology, climatology, hydrology, and soil science to explore the evolution of the surface environment of the earth from the Archean to the present, including the great oxidation event and modern ocean anoxia. Students will read research papers and will be encouraged to question and debate course topics.
Grading status: Letter grade.

GEOL 590. Special Topics in Earth Sciences. 1-4 Credits.
Discussion or lab-based consideration of topical issues in earth sciences.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 8 total credits. 2 total completions.
Grading status: Letter grade.

GEOL 595. Advanced Field Seminar in Geology. 1-4 Credits.
A field course that emphasizes advanced field methods. Emphasis is placed on large-scale, detailed field work in complex structural terrains and on independent mapping that will lead to thesis/dissertation and/or publication. Previously offered as GEOL 695.
Requisites: Prerequisites, GEOL 485 and 486.
Grading status: Letter grade.

GEOL 608. Continuum Mechanics in the Earth Sciences. 3 Credits.
Applications of continuum mechanics in the earth sciences, including stress, strain, elasticity, and viscous flow. Numerical solutions to problems in heterogeneous finite strain including finite element analysis.
Requisites: Prerequisites, GEOL 302, and PHYS 114, 116, or 118.
Grading status: Letter grade
Same as: ENEC 608.

GEOL 655. Recent Advances in Non-Traditional Stable Isotope Geochemistry. 3 Credits.
This seminar will introduce students to state of the art analytical techniques, current theories, and their applications in various geological processes regarding the non-traditional stable isotopes (e.g., Li, Mg, Fe, Mo, and Cr). After introducing some basic principles and analytical techniques of these so called "non-traditional" stable isotopes, students will present and discuss recent literature in this arena.
Gen Ed: QI.
Grading status: Letter grade.

GEOL 691H. Honors. 3 Credits.
By permission of the department. For details, see geology degree requirements.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

GEOL 692H. Honors. 3 Credits.
For details, see geology degree requirements.
Requisites: Prerequisite, GEOL 691H.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

GEOL 700. Research Seminar. 1 Credit.
Required of all entering graduate students or permission of the department. A topical seminar in current research topics in the earth sciences. Presentations by selected faculty with an emphasis on in-depth, critical analysis of current research literature. Two hours a week.
Grading status: Letter grade.

GEOL 701. Graduate Seminar. 0.5-21 Credits.

GEOL 703. Sedimentary Geology I. 3 Credits.
Stratigraphic, sedimentologic, geochemical, petrologic, and paleontologic principles will be summarized. Emphasis is placed on both the techniques used in sedimentary geology and on the characteristics and processes that distinguish sedimentary environments.
Requisites: Prerequisite, GEOL 402.
Grading status: Letter grade.

GEOL 704. Sedimentary Geology II. 3 Credits.
Continuation of GEOL 703.
Requisites: Prerequisite, GEOL 703.
Grading status: Letter grade.

GEOL 705. Advanced Petrology I. 3 Credits.
Application of thermodynamics, phase equilibria, thermobarometry, radiogenic and stable isotope geology, and geochemical modeling to the study of igneous and metamorphic rocks and crustal evolution.
Requisites: Prerequisites, CHEM 102, GEOL 304, MATH 233, and PHYS 105.
Grading status: Letter grade.

GEOL 706. Advanced Petrology II. 3 Credits.
Continuation of GEOL 705.
Requisites: Prerequisite, GEOL 705.
Grading status: Letter grade.

GEOL 707. Stratigraphic Micropaleontology: Mesozoic Calcareous Nannofossils. 4 Credits.

GEOL 708. Stratigraphic Paleontology: Cenozoic Calcareous Nannofossils. 4 Credits.

GEOL 710. Advanced Coastal Environmental Change. 3 Credits.
Focuses on biological-physical couplings that shape coastal environments (i.e. coastal 'ecomorphodynamics') and determine how these environments change with climate and land use. Environments include: barrier islands, open ocean coastlines, and tidal wetlands. Grading based on presentations, participation, and a research proposal.
Requisites: Prerequisites, GEOL 417, 502, or 503; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: MASC 730, ENEC 710.

GEOL 711. Advanced Mineralogy. 3 Credits.

GEOL 712. Isotope Geochemistry. 3 Credits.
Survey of isotopic studies in geology; geochronology, crustal evolution, heat flow, paleotemperatures, origin of ore deposits.
Requisites: Prerequisites, CHEM 102, GEOL 301, 303, and 304.
Grading status: Letter grade.

GEOL 804. Advanced Igneous Petrology. 4 Credits.

GEOL 805. Igneous Geochemistry. 4 Credits.

GEOL 806. Metamorphic Petrology. 4 Credits.

GEOL 809. Tectonophysics. 3 Credits.
Fundamental physical processes necessary for an understanding of plate tectonics; stress and strain in solids; elasticity and flexure; heat transfer; gravity; mantle rheology and convection.
Requisites: Prerequisites, MATH 383, PHYS 201, and 211; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

GEOL 851. Seminar in Stratigraphy. 1-15 Credits.

GEOL 852. Seminar in Paleoclimatology. 1-15 Credits.

GEOL 853. Seminar in Paleontology. 1-15 Credits.

GEOL 854. Seminar in Continental Margins. 0.5-21 Credits.

GEOL 855. Seminar in Sedimentology. 1-15 Credits.

GEOL 856. Seminar in Isotope Geology. 3 Credits.
Introduction to the theory, methods and applications of stable isotopes to low- and high-temperature problems. Primary focus will be on the origin, natural abundance, and fractionation of carbon, hydrogen, and oxygen isotopes.
Grading status: Letter grade.

GEOL 857. Seminar in Geochemistry. 1-15 Credits.

GEOL 858. Seminar in Petrology. 1-15 Credits.

GEOL 859. Seminar in Economic Geology. 1-15 Credits.

GEOL 860. Seminar in Volcanology. 3 Credits.
All aspects of volcanism will be covered including seismology, geochemistry, deep structure, volcanic products and hazards. Readings of original papers will be stressed.
Grading status: Letter grade.

GEOL 861. Seminar in Geophysics. 0.5-21 Credits.
Develop explanatory and predictive models of the earth's climate. Introductory level and focused on modeling past climate with the hope of understanding its future. A thorough discussion of current global warming/climate change issues, including the science, history, and controversy, are the main topics of the last third of the course.
Grading status: Letter grade.

GEOL 862. Seminar in Seismology. 3 Credits.

GEOL 863. Seminar in Structural Geology. 1-15 Credits.

GEOL 864. Seminar in Tectonics. 3 Credits.
The goal of this seminar is to examine the Cretaceous to Eocene tectonics of the western United States to evaluate the putative flat slab processes responsible. Geologic research on the Laramide Orogeny predates plate tectonic theory, and the explosion of subsequent research warrants a reevaulation of existing theory.
Grading status: Letter grade.

GEOL 900. Research in Geology. 1-9 Credits.

GEOL 993. Master's Research and Thesis. 3 Credits.

GEOL 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF GERMANIC AND SLAVIC LANGUAGES AND LITERATURES (GRAD)

Contact Information

Department of Germanic and Slavic Languages and Literatures
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The Carolina-Duke Graduate Program in German Studies

The Department of Germanic and Slavic Languages and Literatures offers a Ph.D. in German studies in conjunction with Duke University. The Carolina–Duke graduate program in German studies is a fully merged graduate program that draws on one of the largest German studies faculties in the country, as well as on the considerable library holdings of each institution. Students apply to a single program and graduate with a diploma bearing the names of both Duke University and the University of North Carolina at Chapel Hill.

The Carolina–Duke Graduate Program in German offers students a combination of disciplinary rigor and interdisciplinary flexibility that recognizes the fundamental interrelation of all the cultural expressions of societies where the German language is spoken. Taking full advantage of the intellectual, educational, and cultural resources of two great universities, the program offers an attractive combination of individual attention in small classes and a close connection to the broader communities of literature, cultural studies, and German studies at Duke University and at the University of North Carolina at Chapel Hill.

The core German studies faculty (at a current number of 21, one of the largest in North American German studies), represents all branches of research in the field, including medieval studies, gender and sexuality studies, literary theory and poetics, European intellectual history, modernism, realism, German-Jewish studies, Holocaust studies, politics and culture in the 20th century, film and media studies, science studies, Afro-German and Turkish-German culture, and contemporary society. This ensures that all major aspects of German literary, cinematic, and cultural history, from medieval manuscripts to contemporary cinema, are covered by experts in the field. Faculty engage in innovative, interdisciplinary teaching and research projects involving other departments and programs and support close intellectual ties with major German universities.

Students take courses full time in their first year of study; in subsequent years they acquire pedagogical training and teaching experience at both a private (Duke University) and a public (University of North Carolina at Chapel Hill) university. Multiple program options are available to students, from the study of historical periods and genres (medieval to contemporary) to literary criticism and theory. Interdisciplinary work is strongly encouraged.

Admission is competitive and limited to no more than seven students a year. Duke University and the University of North Carolina at Chapel Hill are committed to offering five years of full funding, including tuition, to students in good standing in the program.

Note: The previous Ph.D. programs in German studies at Duke University and in Germanic languages at the University of North Carolina at Chapel Hill no longer admit new students.

Admissions Requirements

We seek applicants with extraordinary academic records and intellectual curiosity, and we welcome applicants of any nationality, from diverse academic and cultural backgrounds. A bachelor's degree or the international equivalent is required, generally in German studies or a related field. All applications are routed through The Graduate School at UNC–Chapel Hill in a single admissions process that ensures that incoming students matriculate fully at both the University of North Carolina at Chapel Hill and at Duke University.

Please read UNC's admissions instructions (http://gradschool.unc.edu/admissions) for detailed information about the application process and requirements. Additional information is available on the Carolina-Duke Web site (http://carolina-duke-grad.german.duke.edu/apply/how-apply). Questions regarding translation issues and foreign degrees and transcripts should be directed to gsll@unc.edu.

Application Deadline

Applicants are strongly encouraged to complete their applications by early December and must meet all posted deadlines (http://gradschool.unc.edu/admissions).

Teaching

Teacher training is a central component of the Carolina–Duke Graduate Program in German Studies. Both departments provide rigorous training in foreign language teaching, which includes an introduction to the interdisciplinary fields of applied linguistics and second-language acquisition.

Teaching assistantships are normally available to students in their second through fifth years of study who continue to make satisfactory progress towards the completion of their degree and remain in good standing in the program.

It is crucial that teaching assistants (TAs) have highly advanced German language skills. During their first year, students' language proficiency in German will be evaluated. Only students who achieve a level of "Superior" (C1 according to ACTFL guidelines (http://www.actfl.org/i4a/pages/index.cfm?pageid=4236)) will be asked to teach in the German language program. Students who do not possess the required proficiency in German will be expected to obtain this proficiency as soon as possible.

Beginning TAs generally teach first-year German and take the foreign language pedagogy course concurrently with their first semester of teaching. In later semesters graduate students often teach second-year German and occasionally more advanced undergraduate courses as well (German culture and society, advanced composition, introduction to German literature). In addition, students may serve as discussion leaders in larger lecture courses or serve as research assistants.

Study and Research Abroad

Students are strongly encouraged to study and conduct research abroad as an integral part of their graduate work. Both Duke University and the University of North Carolina at Chapel Hill have strong, long-standing partnerships with German universities.

Duke offers student exchanges with the Free University of Berlin and the University of Potsdam, programs in which graduate students in German studies regularly participate. Additionally, Duke University's Department of Germanic Languages and Literatures has initiated a graduate student exchange with the University of Duisburg-Essen, which typically takes the American graduate students to Essen for four weeks of intensive study in May or June, with a corresponding visit of German students to Durham in September. Finally, select graduate students will be invited to serve as mentors, instructors, and/or program assistants in the undergraduate Duke study abroad summer program in Berlin.

The University of North Carolina at Chapel Hill has partnerships with German universities, including exchanges with Göttingen, Tübingen, and the state of Baden-Württemberg. Its German department has a teaching assistant exchange with the University of Tübingen, annually sending one graduate student to Tübingen to pursue further graduate studies.

Further, graduate students in German at Duke University and the University of North Carolina at Chapel Hill have a strong track record for successful DAAD and Fulbright fellowships for study abroad.

Course of Study

1. Five core courses: Foreign Language Pedagogy, Theories, and Practices; Cultural Foundations in German Studies, to 1800; Cultural Foundations in German Studies, 1800 to the Present; Middle High German; and German Linguistics or History of the German language. Incoming students who have satisfactorily completed equivalent graduate courses may be exempted by the directors of graduate studies and graduate advising from one or more of the required courses.
2. Students are required to take two courses outside the German studies program that complement the students' areas of interest in an interdisciplinary fashion. In their first semester students take all their coursework in the program. In subsequent semesters, students may take one course per semester outside the program. All courses taken outside the program must be approved by the directors of graduate study.
3. A total of 16 courses (including those enumerated above), two of which may be credit for work on the dissertation.
4. Demonstration of advanced reading knowledge of an additional foreign language (a language besides English and German) that is appropriate to the student's areas of research interest. This may be done at any point during the student's studies, but the requirement must be satisfied prior to the time that the doctoral thesis is submitted for the final defense.
5. A writing proficiency review, normally by the end of the second year.
6. A Ph.D. preliminary exam, normally by the end of the third year.
7. A dissertation chapter and prospectus review defense, normally by the end of the fourth year.
8. An oral dissertation defense, normally by the end of the fifth year.

In addition, students are strongly encouraged to attend the program's monthly "works-in-progress" seminar, at which faculty, advanced graduate students, and guests present their current research. Students are also strongly encouraged to audit one graduate course per semester once they have completed their required coursework during terms in which they are in residence.

Qualifying Requirements

1. Satisfactory performance in all coursework.
2. Satisfactory performance in the teaching program.
3. Demonstration of proficiency in German, including all four competencies (reading, writing, speaking, and listening), at a level of "Superior" (C1 according to ACTFL guidelines (http://www.actfl.org/i4a/pages/index.cfm?pageid=4236)), usually by the time the student enters the program or by the end of the first year of study.
4. Demonstration of reading knowledge in a second foreign language relevant to the student's research, as approved by the directors of graduate studies.
5. All students will submit an annual plan of study report each year prior to completion of their preliminary exam. Doing so encourages students to reflect in broad terms on their current intellectual interests and possible future trajectories for these interests. Visit the Annual Plan of Study Report (http://carolina-duke-grad.german.duke.edu/annual-plan-study-report) Web page for more information.
6. Successful completion of the writing proficiency review, normally by the end of the second year of study. Normally, students will submit a revision of a paper originally written for one of their courses.
7. Completion of the preliminary examination with a grade of "pass." The exam is normally taken in the third year of study.
8. Participation in a bi-weekly dissertation colloquium once the student has successfully passed the preliminary examination, for each semester the student is in residence. Participants submit an abstract of their project at the beginning of each semester and share chapters of their work in progress.
9. Successful completion of a dissertation chapter review, usually by the end of the fourth year of study.

Coursework

Checklist of 16 Courses

1. Foreign Language Pedagogy

2. Foundations, to 1800

3. Foundations, 1800 to present

4. Middle High German

5. German Linguistics or History of the German Language

6–7. Electives: Courses from outside the program

8–14. Electives

15–16. Dissertation research

Carolina-Duke Courses

Students will enroll in courses both at Carolina and at Duke. In addition to the UNC German courses listed in this catalog, students should also look at the Duke graduate German courses (https://german.duke.edu/courses).

Courses outside German Studies

Students will normally take at least two courses outside the German studies program. They are encouraged to take more as relevant to their interests and research.

All Carolina–Duke graduate students should familiarize themselves with Duke University's Responsible Conduct of Research (http://gradschool.duke.edu/academics/degree_reqs/rcr) (RCR) requirements. International Carolina–Duke graduate students should familiarize themselves with the English Language Proficiency (http://gradschool.duke.edu/academics/degree_reqs/eis.php) requirements.

Transfer Credit

Students coming in with an M.A. in German may, at the discretion of the directors of graduate studies, receive credit for coursework completed at their previous institution. A maximum of four courses can be remitted, and decisions about credit for prior coursework will be made at the end of the students' first year in the Carolina–Duke graduate program.

Reviews, Examinations, Dissertation

The Annual Plan of Study Report

All students are required to prepare and submit to the directors of graduate studies an updated plan of study form by January 31 of years one through three. Once the preliminary exam has been taken, students prepare and submit instead an abstract of their dissertation project.

The Writing Proficiency Review

For the writing proficiency review–an hour-long oral review that takes place in the second year of study–students submit a scholarly paper, normally written in English and about 30 pages in length, which expands and reworks a paper written for one of their courses. The director of graduate studies sets up a committee of three faculty members, including the student's primary advisor, in consultation with the student.

Ph.D. Committee

For the purpose of the preliminary examination and the dissertation chapter review, the Ph.D. committee consists of four faculty members, including the faculty advisor, selected by the student in consultation with the faculty advisor and the director of graduate studies. A fifth faculty member will be added to the committee for the dissertation defense. Typically, faculty members from the preliminary exam will also serve on the dissertation review and dissertation defense committees. At least one faculty member must come from each university department, and the majority of the committee must consist of Carolina–Duke German faculty members.

The Preliminary Examination

The purpose of the preliminary exam is to ensure competency in a teaching field and to establish a comprehensive intellectual framework for the dissertation project. The exam should be designed so that students approach their teaching interests and dissertation research in such a way as to engage a set of broad questions that will speak to scholars both within and outside the field of German studies. The exam centers on two equally weighted lists, one of which generally concerns itself with a broadly defined literary field, such as a recognized period, movement, or genre across several periods. The other list focuses on a more specific topic such as represents the student's projected area of doctoral research, it being understood that by "area" of doctoral research something broader is envisioned than a list of texts immediately pertinent to the "topic" of the dissertation. In keeping with the prevalent conception of German studies, at least one of the exam lists ought to have a substantive interdisciplinary component; this might include integrating a particular historical span of literary production with an adjacent and related area, such as visual culture, music, religion, cultural anthropology, literary or critical theory, media studies, philosophy, linguistics, or political theory.

The preliminary examination has both a written and an oral component. In consultation with their advisor and the director of graduate studies, students may choose either of the following formats for the written portion of the exam.

1. An in-house, closed book exam. Students are given eight hours to respond to three out of a set of about six exam questions assembled by the student's faculty advisor in consultation with committee members. The program will provide a computer for the exam and a quiet room; legible handwritten exams are also acceptable.
2. A take-home, open-book exam, consisting of two substantial questions, one on each field, given every other day. Students are given 24 hours per question and are expected to submit an essay of roughly 15 pages on the assigned topic. Students are encouraged to make use of all available technology and of any materials, resources, databases, etc., they would normally consult while doing research.

The oral portion of the exam, with questions from all examiners, lasts about 90 minutes and generally takes place no more than two weeks after the written exam.

Dissertation Overview

A successful German studies Ph.D. dissertation is expected to be a mature and competent piece of writing, embodying the results of significant and original research, and it must constitute a significant contribution to the field of German studies.

Following the preliminary exam in their third year of study, students are generally expected to complete their dissertation chapter review during their fourth year of study and to defend their dissertation by the end of the fifth year.

Once a student has begun work on the dissertation, the Annual Plan of Study requirement is replaced by a requirement that the student produce a Dissertation Abstract. This abstract is to be updated on an annual basis and, once it has been approved by the dissertation advisor, turned in by the deadline for the Annual Plan of Study.

Dissertation Chapter and Prospectus Review

In consultation with their advisor, students develop a dissertation project. Students submit to the dissertation review committee a chapter of 30 to 45 pages, a two-to-three-page overview of the dissertation, and a comprehensive bibliography. The oral review lasts approximately 90 minutes.

Dissertation Defense

When the student and the primary advisor are satisfied that a defensible draft is complete, they will offer it to the members of the committee for final approval and set a date for the final examination (also known as the dissertation defense). The defense will usually be held as soon after submission of the final draft as is practical and in keeping with University and Graduate School requirements.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Carolina–Duke Graduate Program in German Studies

carolina-duke-grad.german.duke.edu (https://carolina-duke-grad.german.duke.edu)

Professors

Ruth von Bernuth (10) (UNC), Medieval and Early Modern, Jewish Studies, Yiddish, Popular Culture, Disability Studies
Eric Downing (2) (UNC), 18th-to-20th-Century Narrative Fiction, Literary Theory, Realism and Aestheticism
Clayton Koelb (20) (UNC), Modern Literature (Thomas Mann, Franz Kafka), Literary Theory, Philosophy and Aesthetics, Comparative Literature
Thomas Pfau (30) (Duke), 19th-Century Literature, Literary History and Criticism, English Literature
David Pike (8) (UNC), 20th-Century Literature, East German and Soviet Culture and Politics
Paul T. Roberge (9) (UNC), Historical Linguistics, Older Germanic Dialects, Comparative Germanic Grammar, Pidgins and Creoles, Afrikaans, Language, Ethnicity, and Politics
Stefani Engelstein (31) (Duke), Intellectual and Cultural History, Jewish Studies, 18th- and 19th-Century Literature

Associate Professors

Richard Langston (7) (UNC), Postwar and Contemporary Literature, Avant-Garde Studies, Popular Culture and Literature, Literary and Cultural Theory
Priscilla Layne (16) (UNC), 20th- and 21st-Century Literature, Film and Music, (Post)Subculture Studies, Multiculturalism, Afro-German History and Culture, and Gender Studies
Jakob Norberg (35) (Duke), Postwar Literature and Society, 20th-Century Austrian Literature, Political Theory
Henry Pickford (32) (Duke), Aesthetics, Literary and Critical Theory, Philosophy and Literature, Aesthetics
Inga Pollman (5) (UNC), Film and Media Theory and History, Early Cinema, German Cinema, Film and Science, Aesthetic and Critical Theory
Gabriel Trop (11) (UNC), 18th-Century Studies, Poetry and Poetics, Romanticism, Philosophy and Aesthetics

Associate Professors of the Practice

Cori Crane (36) (Duke), Applied Linguistics, Second Language Acquisition, Pedagogy
Ingeborg Walther (33) (Duke), Applied Linguistics, Second Language Acquisition, 20th-Century Literature

Assistant Professors

Kata Gellen (34) (Duke), German Modernism, Austrian Literature, German-Jewish Studies
Aleksandra Prica (15) (UNC), Medieval and Early Modern German Literature and Culture, Media Studies, Literature and the Bible, Literature and Knowledge, Poetology and Hermeneutics, Historical Processes, Aesthetics of Form

Teaching Assistant Professors

Claire Scott (UNC)
Christina M. Weiler (UNC)

Lecturers

Kristen Dolan (Duke)
Susanne Freytag (Duke)
April Henry (Duke)

Adjunct Assistant Professors

Heidi Madden (Duke), 19th Century, Comparative Literature and Theory
Dan Thornton (25) (UNC), Postwar German and Austrian Literature, Expressionism, Neue Sachlichkeit, Golden Age and 20th-Century Dutch Literature, Holocaust Studies, Jewish Literature in the Diaspora

Professors Emeriti

Siegfried Mews (UNC)
Michael Morton (Duke)
James Rolleston (Duke)
Ann Marie Rasmussen (Duke)
Christoph E. Schweitzer (UNC)
Petrus W. Tax (UNC)

Associate Professor Emeritus

Walter K. Francke (UNC)
Norman Keul (Duke)

Assistant Professor Emerita

Helga Bessent (Duke)

Slavic and East European Languages and Literatures

Professor

Hana Pichova (4), Czech Literature

Associate Professor

Radislav Lapushin (14), Russian Literature

Assistant Professor

Stanislav Shvabrin (22), Russian Literature

Teaching Associate Professor

Eleonora Magomedova (6), Russian Language

Teaching Assistant Professor

Natalia Chernysheva (UNC), Russian Language

Professors Emeriti

Madeline G. Levine
Peter Sherwood

Associate Professors Emeriti

Lawrence Feinberg
Christopher R. Putney
Ivana Vuletic

German (GERM)

Advanced Undergraduate and Graduate-level Courses

GERM 400. Advanced German Grammar. 3 Credits.
Review of basic and advanced grammatical structures. Course strengthens application of grammar in context for undergraduate and graduate students. Graduate students also work with grammar issues encountered in the foreign language classroom.
Requisites: Prerequisite, GERM 204; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

GERM 450. Nietzsche, Hesse, and Mann. 3 Credits.
Explores Nietzsche on literature, and Hesse's and Mann's literary thematization of Nietzsche's philosophy. Emphasis on conceptions of character, myth, music, and language, and Nietzsche's cultural and moral critique and its reevaluation in light of the 20th century political crises. Taught in English; some readings in German for qualified students.
Gen Ed: LA, NA.
Grading status: Letter grade.

GERM 479. What is a Medium? German Media Theory from Aesthetics to Cultural Techniques. 3 Credits.
This seminar provides students across the humanities with an overview of the historical and cultural relevance of German media theories. We will discuss the distinction between "art" and "medium", the role of technology and techniques, as well as the interaction of media theory and practice with politics. Films with English subtitles; readings and discussions in English.
Gen Ed: VP, CI.
Grading status: Letter grade
Same as: CMPL 479.

GERM 493. Internship in German. 3 Credits.
This course enables a student to earn a maximum of three credit hours for a faculty-supervised internship directly related to the study of German literature or culture, or that uses the German language in day-to-day conduct of business in a German-speaking environment.
Requisites: Prerequisite, GERM 303.
Gen Ed: EE- Academic Internship, NA.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

GERM 500. History of the German Language. 3 Credits.
Development of phonology and morphosyntax from ancient times to present. Political, social, and literary forces influencing the language.
Requisites: Prerequisites, GERM 302 and 303; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

GERM 501. Structure of German. 3 Credits.
LING 101 recommended for undergraduates. Introduction to formal analysis of German grammar (phonology, morphophonemics, prosodics, morphology, syntax) within the framework of generative grammar.
Requisites: Prerequisites, GERM 302 and 303; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: LING 567.

GERM 502. Middle High German. 3 Credits.
Introduction to medieval German language, literature, and culture. Readings in English, German and Middle High German. Discussions in German.
Requisites: Prerequisite, GERM 303; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

GERM 505. Early New High German. 3 Credits.
Permission of the instructor for undergraduates. Reading and linguistic analysis of Early New High German texts, with study of phonology, morphology, and syntax. On demand.
Grading status: Letter grade.

GERM 508. Old High German. 3 Credits.
Permission of the instructor for undergraduates. Reading and linguistic analysis of Old High German texts, with study of phonology, morphology, and syntax; comparison of the various dialects with other older dialects of Germanic. On demand.
Grading status: Letter grade.

GERM 511. Old Saxon. 3 Credits.
Permission of the instructor for undergraduates. Reading and linguistic study of biblical texts (Heliand, Genesis) in Old Saxon, with study of phonology, morphology, and syntax; comparison with Old English, Old High German, and other Germanic dialects. On demand.
Grading status: Letter grade.

GERM 514. Old Norse I (Old Icelandic). 3 Credits.
Permission of the instructor for undergraduates. Reading and linguistic analysis of Old Norse (Old Icelandic) texts, with study of phonology, morphology, and syntax; comparison with other older dialects of Germanic. On demand.
Grading status: Letter grade.

GERM 515. Old Norse II (Old Icelandic). 3 Credits.
Permission of the instructor for undergraduates. Continuation of GERM 514. On demand.
Grading status: Letter grade.

GERM 517. Gothic. 3 Credits.
Permission of the instructor for undergraduates. Reading and linguistic analysis of Gothic biblical texts, with study of phonology, morphology, and syntax; comparison with other older dialects of Germanic. On demand.
Grading status: Letter grade.

GERM 520. Stylistics: Theory and Practice. 3 Credits.
LING 101 recommended for undergraduates. Study of stylistic theories and practices in literature and linguistics, analysis of a large variety of texts, written exercises, training in the use of stylistic devices.
Requisites: Prerequisites, GERM 302 and 303; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

GERM 521. Variation in German. 3 Credits.
LING 101 recommended for undergraduates. Major topics in sociolinguistics: development of the German language, traditional dialects, variation in contemporary speech, German as a minority language (Alsace, Belgium), German outside of Germany (Austria, Switzerland, Luxemburg, Liechtenstein).
Requisites: Prerequisites, GERM 302 and 303; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

GERM 545. Problems in Germanic Linguistics. 3 Credits.
LING 101 recommended for undergraduates. Special problems will be selected for intensive investigation. Subject matter of the course will be adapted to the particular interests of the students and instructor.
Requisites: Prerequisites, GERM 302 and 303; permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

GERM 590. Topics in Germanic Linguistics. 3 Credits.
LING 101 recommended for undergraduates.
Requisites: Prerequisites, GERM 302 and 303; permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 601. Elementary German for Graduate Students. 3 Credits.
Permission of the instructor for undergraduates. With GERM 602, a two-semester sequence designed as preparation for the reading knowledge examination for higher degrees in the humanities, social sciences, physical sciences, etc.
Grading status: Letter grade.

GERM 602. Elementary German for Graduate Students, Continued. 3 Credits.
Permission of the instructor for undergraduates. Continuation of GERM 601.
Grading status: Letter grade.

GERM 605. Comparative Germanic Grammar. 3 Credits.
Permission of the instructor for undergraduates. LING 101 recommended for undergraduates. Analysis of phonological, morphological, and syntactic development from Indo-European to the older stages of Germanic dialects.
Grading status: Letter grade.

GERM 615. Cultural Foundations in German Studies, to 1800. 3 Credits.
Permission of the instructor for undergraduates. First part of a two-semester sequence offering students a comprehensive, text-based survey of German literary history from the High Middle Ages to the present.
Grading status: Letter grade.

GERM 616. Cultural Foundations in German Studies: 1800 to Present. 3 Credits.
Permission of the instructor for undergraduates. Second part of a two-semester sequence offering students a comprehensive, text-based survey of German literary history from the High Middle Ages to the present.
Grading status: Letter grade.

GERM 625. Early Modern Literature. 3 Credits.
Permission of the instructor for undergraduates. German literature of the 15th, 16th, and 17th centuries. Close readings, lectures, and discussions of representative texts.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 630. 18th-Century Literature. 3 Credits.
Permission of the instructor for undergraduates. Literature in the Age of Enlightenment. Close readings, lectures, and discussions of representative texts.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 640. Early 19th-Century Literature. 3 Credits.
Permission of the instructor for undergraduates. Literature of the Romantic period. Close readings, lectures, and discussions of representative texts.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 645. Later 19th-Century Literature. 3 Credits.
Permission of the instructor for undergraduates. Literature of Realism, Naturalism, and related movements. Close readings, lectures, and discussions of representative texts.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 650. Early 20th-Century Literature. 3 Credits.
Permission of the instructor for undergraduates. Major figures of the period from the turn of the century to World War II. Close readings, lectures, and discussions of representative texts.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 655. Later 20th-Century Literature. 3 Credits.
Permission of the instructor for undergraduates. Literature since World War II in both the Federal Republic and the former GDR. Close readings, lectures, and discussions of representative texts.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 685. Early 21st-Century German Literature. 3 Credits.
Permission of the instructor for undergraduates. Literature since German unification in 1989. Close readings, lectures, and discussions of representative texts.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

Graduate-level Courses

GERM 700. Foreign Language Pedagogy: Theories and Practice. 3 Credits.
For prospective teachers of German. Required of all teaching assistants.
Grading status: Letter grade.

GERM 703. Advanced Topics in Foreign Language Pedagogy. 3 Credits.
This seminar provides experienced teaching assistants the opportunity to revisit the fundamentals in foreign language pedagogy while exploring in greater depth advanced issues like content-based instruction, technology, and supervising.
Requisites: Prerequisite, GERM 700.
Grading status: Letter grade.

GERM 706. Topics in Literary Theory. 3 Credits.
Literary and cultural theory with a German accent. Topics may include hermeneutics, Frankfurt School, reception theory, psychoanalysis, new historicism, and other strains of contemporary theory relevant to German studies.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 820. Topics in Medieval Literature. 3 Credits.
Selected topics in medieval literature. Topics will vary by offering.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 825. Topics in Early Modern Literature. 3 Credits.
Selected topics in early modern literature. Topics will vary by offering.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 830. Topics in 18th-Century Literature. 3 Credits.
Selected topics in 18th-century literature. Topics will vary by offering.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 840. Topics in Early 19th-Century Literature. 3 Credits.
Selected topics in early 19th-century literature. Topics will vary by offering.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 845. Topics in Later 19th-Century Literature. 3 Credits.
Selected topics in later 19th-century literature. Topics will vary by offering.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 850. Topics in Early 20th-Century Literature. 3 Credits.
Selected topics in early 20th-century literature. Topics will vary by offering.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 855. Topics in Later 20th-Century Literature. 3 Credits.
Selected topics in later 20th-century literature. Topics will vary by offering.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 860. Topics in Aesthetics and Criticism. 3 Credits.
Selected topics in aesthetics and criticism. Topics will vary by offering.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 861. Topics in Literary Genres. 3 Credits.
Explores issues associated with various literary genres across various literary periods.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 865. Topics in German Cultural Studies. 3 Credits.
Selected topics in German cultural studies. Topics will vary by offering.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 870. Topics in Gender Studies. 3 Credits.
Selected topics in gender studies. Topics will vary by offering.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 875. Topics in German Jewish Studies. 3 Credits.
Selected topics in German Jewish studies. Topics will vary by offering.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 880. Topics in German Cinema. 3 Credits.
Selected topics in German cinema. Topics will vary by offering.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 885. Topics in 21st Century German Literature. 3 Credits.
Selected topics in 21st-century literature. Topics will vary by offering.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 889. Special Topics in German Literature, Culture, Film: Compact Seminar. 3 Credits.
An intensive seven-week seminar to be offered exclusively during fall semesters, this graduate-level course is taught by a distinguished short-term scholar with expertise in German literature, film or culture who is visiting from a German-speaking country.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 896. Independent Readings. 1-12 Credits.
Permission of the instructor and the director of graduate studies. Special readings and research in a selected field or topic outside the scope of current course offerings.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

GERM 899. Graduate Study Abroad Credit. 3-9 Credits.
Registration course credit for students who are registered abroad as part of a graduate foreign exchange program.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

GERM 980. Seminar in German Literature. 3 Credits.

GERM 985. Seminar in German Linguistics. 3 Credits.

GERM 992. Master's (Non-Thesis). 3 Credits.
Students enrolled in the Carolina-Duke Graduate Program in German Studies will enroll in this course during the semester in which they undergo the Writing Proficiency Review.
Repeat rules: May be repeated for credit.

GERM 994. Doctoral Research and Dissertation. 3 Credits.

Duke German Studies Courses

(Please check the Duke University course catalog (http://registrar.duke.edu/courses-classrooms/course-catalog).)

Dutch (DTCH)

Advanced Undergraduate and Graduate-level Courses

DTCH 402. Elementary Dutch. 3 Credits.
The first course in the Dutch language sequence, DTCH 402 is a rapid introduction to modern Dutch with emphasis on all fundamental components of communication. Completion of DTCH 402 fulfills level 2 of a foreign language.
Gen Ed: FL.
Grading status: Letter grade.

DTCH 403. Intermediate Dutch. 3 Credits.
The second course in the Dutch language sequence, DTCH 403 focuses on increased skills in speaking, listening, reading, global comprehension, and communication. Emphasis on reading and discussion of longer texts. Completion of DTCH 403 fulfills level 3 of a foreign language.
Requisites: Prerequisite, DTCH 402; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

DTCH 404. Advanced Intermediate Dutch. 3 Credits.
This third Dutch course completes the language sequence. DTCH 404 aims to increase proficiency in language skills (reading, speaking, writing) and is constructed around a series of themes meant to introduce students to Dutch society, culture, and history. Completion of DTCH 404 fulfills level 4 of a foreign language.
Requisites: Prerequisite, DTCH 403; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

DTCH 405. Topics in Dutch Culture: A Literary Survey. 3 Credits.
Ability to read and speak Dutch at intermediate to advanced level recommended. Introduction to Dutch literature from Middle Ages to the present. Survey of topics in Dutch culture.
Requisites: Prerequisite, DTCH 404; permission of the instructor for students lacking the prerequisite.
Gen Ed: LA, NA.
Grading status: Letter grade.

Graduate-level Courses

DTCH 896. Independent Readings in Dutch. 1-9 Credits.
Special readings and research in a selected field or topic under the direction of a faculty member.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

Slavic (SLAV)

Advanced Undergraduate and Graduate-level Courses

SLAV 464. Imagined Jews: Jewish Themes in Polish and Russian Literature. 3 Credits.
Explores the fictional representation of Jewish life in Russia and Poland by Russian, Polish, and Jewish authors from the 19th century to the present. Taught in English; some foreign language readings for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: JWST 464.

SLAV 469. Coming to America: The Slavic Immigrant Experience in Literature. 3 Credits.
Fictional and autobiographical expressions of the Slavic and East European immigrant experience in the 20th century. Readings include Russian, Polish, Jewish, and Czech authors from early 1900s to present. Taught in English; some foreign language readings for qualified students.
Gen Ed: LA, GL.
Grading status: Letter grade
Same as: JWST 469.

SLAV 470. 20th-Century Russian and Polish Theater. 3 Credits.
A comparative survey of the major trends in 20th-century Russian and Polish dramaturgy and theatrical production, with attention to aesthetic, professional, and political connections between the two. Taught in English; some foreign language readings for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade.

SLAV 490. Topics in Slavic Culture. 3 Credits.
Comparative study of topics in non-Russian Slavic literatures and culture not covered in any other course. Specific topics will vary and will be announced in advance. Taught in English; some foreign language readings for qualified students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

SLAV 580. East European Literary Criticism. 3 Credits.
Survey of 20th-century Slavic literary criticism. Russian formalists, Bakhtin and his circle, Czech structuralists, Soviet semiotics. Emphasis on influence of Slavic criticism on development of Western literary criticism.
Grading status: Letter grade.

Graduate-level Courses

SLAV 796. Reading Course. 1-12 Credits.
Permission of the instructor. Special readings and research in a selected field or topic under the direction of a faculty member.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

SLAV 994. Doctoral Research and Dissertation. 3 Credits.

Russian (RUSS)

Advanced Undergraduate and Graduate-level Courses

RUSS 409. Intermediate-to-Advanced Russian Communication, Conversation, and Composition in Context I. 3 Credits.
Intermediate-to-advanced communication, conversation, composition, phonetics, and grammar in contemporary cultural context. Meets the needs of learners looking to expand their practical knowledge of contemporary standard Russian in the context of present-day culture, while developing active applied skills pertaining to comprehension, production of, and communication in Russian.
Requisites: Prerequisite, RUSS 204; permission of the instructor for students lacking the prerequisite.
Gen Ed: BN.
Grading status: Letter grade.

RUSS 410. Intermediate-to-Advanced Russian Communication, Conversation, and Composition in Context II. 3 Credits.
Hones skills necessary for advanced communication, conversation, and composition. Presents phonetics and grammar in contemporary cultural context. Learners expand their practical knowledge of contemporary standard Russian in the context of present-day culture, while developing applied skills pertaining to comprehension, production of, and communication in Russian actively using authentic cultural materials.
Requisites: Prerequisite, RUSS 409; permission of the instructor for students lacking the prerequisite.
Gen Ed: BN.
Grading status: Letter grade.

RUSS 411. Advanced Communication, Conversation, and Composition in Contemporary Standard Russian I. 3 Credits.
Develops and maintains advanced skills for speaking, writing, listening, and reading in contemporary standard Russian in a variety of communicative situations. Assists advanced learners in solving a wide range of communicative tasks with the aid of unadapted authentic cultural materials.
Requisites: Prerequisite, RUSS 410; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

RUSS 412. Advanced Communication, Conversation, and Composition in Contemporary Standard Russian II. 3 Credits.
Prepares advanced learners of contemporary standard Russian for communication with educated native speakers of the language in the area of their professional competence. Furthers interactive skills for speaking, writing, listening, and reading in a variety of communicative situations pertaining to the learners' professional expertise.
Requisites: Prerequisite, RUSS 411; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

RUSS 415. Introduction to Russian Literature. 3 Credits.
Reading and discussion of selected authors in Russian aimed at improving reading skill and preparing the student for higher level work in Russian literature. Readings and class discussions in Russian. Course previously offered as RUSS 250.
Requisites: Prerequisite, RUSS 410; permission of the instructor for students lacking the prerequisite.
Gen Ed: LA, BN.
Grading status: Letter grade.

RUSS 445. 19th Century Russian Literature and Culture. 3 Credits.
A survey of the major novels and stories of 19th century Russian fiction, which have entered the canon of world classics and redefined the idea of literature. Taught in English; some readings in Russian for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade.

RUSS 450. The Russian Absurd: Text, Stage, Screen. 3 Credits.
Examines "The Absurd" in Russian literature and culture as it developed from 19th century to the present. Through works by important Russian writers and representative films students encounter facets of "The Russian Absurd" viewed as literary, cultural, and social phenomena. Taught in English; some readings in Russian for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade.

RUSS 455. 20th-Century Russian Literature and Culture. 3 Credits.
As Russia became a laboratory for sociopolitical experiments of global significance, its culture reflected on the most spectacular of its aspirations and failures. Course surveys 20th-century literary, musical and cinematic artifacts that emerged to affect the world profoundly. Taught in English; some readings in Russian for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade.

RUSS 462. Russian Poetry of the 19th Century. 3 Credits.
Readings and lecture on 19th-century Russian poetry. Taught in English; some readings in Russian for qualified students.
Grading status: Letter grade.

RUSS 463. Russian Drama: From Classicism to Modernism. 3 Credits.
Survey of Russian drama as a literary and theatrical phenomenon from the end of the 18th to the beginning of the 20th century. Taught in English; some readings in Russian for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade.

RUSS 464. Dostoevsky. 3 Credits.
Study of major works of Dostoevsky and a survey of contemporary authors and literary trends relevant to his creative career. Taught in English; some readings in Russian for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade.

RUSS 465. Chekhov. 3 Credits.
Study of major works of Chekhov and survey of contemporary authors and literary trends relevant to his creative career. Taught in English; some readings in Russian for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade.

RUSS 469. Bulgakov. 3 Credits.
Study of major works of Mikhail Bulgakov, including Master and Margarita, and a survey of contemporary Russian history and culture relevant to his creative career. Taught in English; some readings in Russian for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade.

RUSS 471. Gogol. 3 Credits.
Study of major works of N. V. Gogol and a survey of contemporary authors and literary trends relevant to his creative career. Lectures and seminar discussions. Taught in English; some readings in Russian for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade.

RUSS 475. Literature of Russian Terrorism: Arson, Bombs, Mayhem. 3 Credits.
Literary representations of Russian revolutionaries and terrorists in the 19th and early 20th centuries. Readings by Dostoevsky, Chernyshevsky, Bely, Joseph Conrad, and by some of the terrorists themselves. Taught in English; some readings in Russian for qualified students.
Gen Ed: LA, BN, CI.
Grading status: Letter grade
Same as: PWAD 475.

RUSS 477. Wicked Desire: Vladimir Nabokov, Lolita, on Page and Screen. 3 Credits.
Vladimir Nabokov's novel Lolita (1955) became a global phenomenon due to its unflinching portrayal of pedophilia. This course will delve deeper into the novel's moral complexity, its international context, and its reflection in mass culture, including movies by Stanley Kubrick (1962) and Adrian Lyne (1997). Taught in English; some readings in Russian for qualified students.
Gen Ed: LA, NA.
Grading status: Letter grade
Same as: CMPL 477.

RUSS 479. Tolstoy. 3 Credits.
Study of the major works of Tolstoy and a survey of contemporary authors and literary trends relevant to his creative career. Taught in English; some readings in Russian for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade.

RUSS 480. Russian-Soviet Jewish Culture: Lofty Dreams and Stark Realities. 3 Credits.
This course delves into the scintillating literary, visual, musical, and cinematic culture created by Jewish universalists seeking to build their new secular identity under the aegis of the Soviet Communist experiment in the aftermath of the 1917 Bolshevik coup. Surveys the works of Isaac Babel, Eduard Bagritsky, Marc Chagall, Sergey Eisenstein, Ilya Ehrenburg, Masha Gessen, Vasily Grossman, Osip Mandelshtam, and others. Taught in English; some readings in Russian for qualified students; films with English subtitles. Honors version available
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: JWST 480.

RUSS 480H. Russian-Soviet Jewish Culture: Lofty Dreams and Stark Realities. 3 Credits.
This course delves into the scintillating literary, visual, musical, and cinematic culture created by Jewish universalists seeking to build their new secular identity under the aegis of the Soviet Communist experiment in the aftermath of the 1917 Bolshevik coup. Surveys the works of Isaac Babel, Eduard Bagritsky, Marc Chagall, Sergey Eisenstein, Ilya Ehrenburg, Masha Gessen, Vasily Grossman, Osip Mandelshtam, and others. Taught in English; some readings in Russian for qualified students; films with English subtitles.
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: JWST 480H.

RUSS 486. Exploration of Russian "Women's Prose" and Svetlana Alexievich (Nobel Prize in Literature 2015). 3 Credits.
Using Alexievich as our beacon, we will explore the writers behind the term "Russian Women's Prose": Valeria Narbikova, Lyudmila Petrushevskaya, Tatyana Tolstaya, and Lyudmila Ulitskaya. The course will delve into gender identity and body politics as they manifest themselves in the literary texts of lasting aesthetic quality and social relevance. Taught in English; some readings in Russian for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: WGST 486, EURO 486.

RUSS 490. Topics in Russian Culture. 3 Credits.
Study of topics in Russian literature and culture not currently covered in any other course. The specific topic will be announced in advance. Taught in English. Some readings in Russian for qualified students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

RUSS 511. Russian Mass Media I. 3 Credits.
Module 1. Fifth-year Russian, intended to expand and master the knowledge of the language necessary for understanding deep ongoing changes in different spheres of Russian society.
Requisites: Prerequisites, RUSS 411 and 412; permission of the instructor for students lacking the prerequisites.
Gen Ed: BN.
Grading status: Letter grade.

RUSS 512. Russian Mass Media II. 3 Credits.
Module 2. Fifth-year Russian, intended to expand and master the knowledge of the language necessary for understanding deep ongoing changes in different spheres of Russian society.
Requisites: Prerequisites, RUSS 411 and 412; permission of the instructor for students lacking the prerequisites.
Gen Ed: BN.
Grading status: Letter grade.

RUSS 513. Russian Culture in Transition I. 3 Credits.
Fifth-year Russian, intended to expand knowledge of the language necessary for understanding social changes that are taking place in Russian society, in literature, art, culture, and everyday human mentality.
Requisites: Prerequisite, RUSS 411; permission of the instructor for students lacking the prerequisite.
Gen Ed: LA, BN.
Grading status: Letter grade.

RUSS 514. Russian Culture in Transition II. 3 Credits.
RUSS 513 is not a prerequisite. Fifth-year Russian, continuing with the theme of RUSS 513 offered in the fall semester.
Requisites: Prerequisite, RUSS 412; permission of the instructor for students lacking the prerequisite.
Gen Ed: LA, BN.
Grading status: Letter grade.

RUSS 562. Structure of Russian. 3 Credits.
Examines Russian from the perspective of linguistic analysis. How do sounds, words, and sentences pattern in Russian? How do these compare with patterns in other languages? Also considers the influence of evidence from Russian on the development of linguistic theory.
Requisites: Prerequisite, LING 101 or RUSS 102; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: LING 562.

Graduate-level Courses

RUSS 790. Teaching Methods and Materials. 1 Credit.
For prospective teachers of Russian. Required of all teaching assistants.
Grading status: Letter grade.

Czech (CZCH)

Advanced Undergraduate and Graduate-level Courses

CZCH 401. Elementary Czech I. 3 Credits.
Proficiency-based instruction at the elementary level that develops the four language skills (speaking, listening, reading, writing). In addition to mastering basic vocabulary and grammar, students will communicate in Czech about everyday topics.
Gen Ed: FL.
Grading status: Letter grade.

CZCH 402. Elementary Czech II. 3 Credits.
Continuation of the proficiency-based instruction in CZCH 401. Course emphasizes speaking, listening, reading, writing in a cultural context. Students enhance their basic vocabulary and grammar and will regularly communicate in Czech about everyday topics.
Requisites: Prerequisite, CZCH 401; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

CZCH 403. Intermediate Czech I. 3 Credits.
Continuation of proficiency-based instruction begun in Elementary Czech.
Requisites: Prerequisite, CZCH 402; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

CZCH 404. Intermediate Czech II. 3 Credits.
Continuation of proficiency-based instruction begun in Elementary Czech.
Requisites: Prerequisite, CZCH 403; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

CZCH 405. Advanced Czech I. 3 Credits.
Advanced readings and discussion in Czech in humanities and social science topics.
Requisites: Prerequisite, CZCH 404; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

CZCH 406. Advanced Czech II. 3 Credits.
Advanced readings and discussion in Czech in humanities and social science topics, continued.
Requisites: Prerequisite, CZCH 405; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

CZCH 411. Introduction to Czech Literature. 3 Credits.
Introduction to Czech literature with an emphasis on 19th- and 20th-century prose. Taught in English. Some readings in Czech for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade.

CZCH 469. Milan Kundera and World Literature. 3 Credits.
This course traces Milan Kundera's literary path from his communist poetic youth to his present postmodern Francophilia . His work will be compared with those authors he considers his predecessors and influences in European literature. Taught in English. Some readings in Czech for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: CMPL 469.

CZCH 490. Topics in Czech Culture. 3 Credits.
Study of topics in Czech and/or Slovak literature and culture not currently covered in any other course. The specific topic will be announced in advance. Taught in English. Some readings in Czech for qualified students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

Hungarian (HUNG)

Advanced Undergraduate and Graduate-level Courses

HUNG 401. Elementary Hungarian. 3 Credits.
Pronunciation, structure of language, and reading in modern Hungarian.
Gen Ed: FL.
Grading status: Letter grade.

HUNG 402. Elementary Hungarian. 3 Credits.
Pronunciation, structure of language, and reading in modern Hungarian, continued.
Gen Ed: FL.
Grading status: Letter grade.

HUNG 403. Intermediate Hungarian Language. 3 Credits.
Continuation of the proficiency-based instruction begun in Elementary Hungarian.
Gen Ed: FL.
Grading status: Letter grade.

HUNG 404. Intermediate Hungarian Language. 3 Credits.
Continuation of the proficiency-based instruction begun in Elementary Hungarian, continued.
Gen Ed: FL.
Grading status: Letter grade.

HUNG 405. Advanced Hungarian. 3 Credits.
Advanced readings and discussion in Hungarian in humanities and social science topics.
Requisites: Prerequisite, HUNG 404; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

HUNG 406. Advanced Hungarian. 3 Credits.
Advanced readings and discussion in Hungarian in humanities and social science topics, continued.
Grading status: Letter grade.

HUNG 407. The Structure of Modern Hungarian. 3 Credits.
Introduction to the phonology, morphology, and syntax of modern standard Hungarian, with emphasis on some of its distinctive typological features.
Requisites: Prerequisite, HUNG 401 or LING 101.
Grading status: Letter grade.

HUNG 411. Introduction to Hungarian Literature. 3 Credits.
An introduction to Hungarian literature of the last five centuries through a selection of works in English translation, with supporting background materials including films (with English subtitles). Taught in English; some readings in Hungarian for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade.

HUNG 490. Topics in Hungarian Culture. 3 Credits.
Study of topics in Hungarian literature and culture not currently covered in any other course. The specific topic will be announced in advance. Taught in English; some readings in Hungarian for qualified students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

Macedonian (MACD)

Advanced Undergraduate and Graduate-level Courses

MACD 401. Elementary Macedonian. 3 Credits.
Pronunciation, structure of language, and reading in modern Macedonian.
Gen Ed: FL.
Grading status: Letter grade.

MACD 402. Elementary Macedonian. 3 Credits.
Pronunciation, structure of language, and reading in modern Macedonian, continued.
Gen Ed: FL.
Grading status: Letter grade.

MACD 403. Intermediate Macedonian. 3 Credits.
Continuation of the proficiency-based instruction begun in Elementary Macedonian.
Gen Ed: FL.
Grading status: Letter grade.

MACD 404. Intermediate Macedonian. 3 Credits.
Continuation of the proficiency-based instruction begun in Elementary Macedonian, continued.
Gen Ed: FL.
Grading status: Letter grade.

MACD 405. Advanced Macedonian. 3 Credits.
Advanced reading and discussion in Macedonian in humanities and social science topics.
Grading status: Letter grade.

MACD 406. Advanced Macedonian. 3 Credits.
Advanced reading and discussion in Macedonian in humanities and social science topics, continued.
Grading status: Letter grade.

Polish (PLSH)

Advanced Undergraduate and Graduate-level Courses

PLSH 401. Elementary Polish I. 3 Credits.
Proficiency-based instruction at the elementary level that develops the four language skills (speaking, listening, reading, writing). In addition to mastering basic vocabulary and grammar, students will communicate in Polish about everyday topics.
Gen Ed: FL.
Grading status: Letter grade.

PLSH 402. Elementary Polish II. 3 Credits.
Continuation of the proficiency-based instruction in PLSH 401. Course emphasizes speaking, listening, reading, writing in a cultural context. Students enhance their basic vocabulary and grammar and will regularly communicate in Polish about everyday topics.
Requisites: Prerequisite, PLSH 401; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

PLSH 403. Intermediate Polish I. 3 Credits.
Continuation of the proficiency-based instruction begun in elementary Polish.
Requisites: Prerequisite, PLSH 402; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

PLSH 404. Intermediate Polish II. 3 Credits.
Continuation of the proficiency-based instruction begun in elementary Polish, continued.
Requisites: Prerequisite, PLSH 403; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

PLSH 405. Advanced Polish I. 3 Credits.
Advanced readings and discussion in Polish on humanities and social science topics.
Requisites: Prerequisite, PLSH 404; permission of Instructor for students lacking the prerequisite.
Gen Ed: BN.
Grading status: Letter grade.

PLSH 406. Advanced Polish II. 3 Credits.
Advanced readings and discussion in Polish on humanities and social science topics, continued.
Requisites: Prerequisite, PLSH 405; permission of the instructor for students lacking the prerequisite.
Gen Ed: BN.
Grading status: Letter grade.

PLSH 411. 19th-Century Polish Literature and Culture. 3 Credits.
An overview of the major literary, cultural and social movements in 19th-century Poland (Romanticism, Positivism and Young Poland) as they relate to Europe more broadly. All readings and discussions in English; readings available in Polish for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade.

PLSH 412. From Communism to Capitalism: 20th- and 21st-Century Polish Literature and Culture. 3 Credits.
An overview of the literary and cultural movements in 20th and 21st century Poland as they relate to major historical changes of the century (World War I and World War II, Communism, Post-communism, accession to the European Union). All readings and discussions in English; readings available in Polish for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: JWST 412.

PLSH 490. Topics in Polish Culture. 3 Credits.
Study of topics in Polish literature and culture not currently covered in any other course. The specific topic will be announced in advance. Taught in English. Some readings in Polish for qualified students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

Bosnian-Croatian-Serbian (BCS)

Advanced Undergraduate and Graduate-level Courses

BCS 401. Elementary Bosnian-Croatian-Serbian Language I. 3 Credits.
Proficiency-based instruction at the elementary level that develops the four language skills (speaking, listening, reading, writing). In addition to mastering basic vocabulary and grammar, students will communicate in the target language about everyday topics. Previously offered as SECR 401.
Gen Ed: FL.
Grading status: Letter grade.

BCS 402. Elementary Bosnian-Croatian-Serbian Language II. 3 Credits.
Continuation of the proficiency-based instruction in BCS 401. Course emphasizes speaking, listening, reading, writing in a cultural context. Students enhance their basic vocabulary and grammar and will regularly communicate in the target language about everyday topics. Previously offered as SECR 402.
Requisites: Prerequisite, BCS 401; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

BCS 403. Intermediate Bosnian-Croatian-Serbian Language I. 3 Credits.
Continuation of the proficiency-based instruction started in Elementary Bosnian-Croatian-Serbian. Previously offered as SECR 403.
Requisites: Prerequisite, BCS 402; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

BCS 404. Intermediate Bosnian-Croatian-Serbian Language II. 3 Credits.
Continuation of the proficiency-based instruction started in BCS 403. Previously offered as SECR 404.
Requisites: Prerequisite, BCS 403; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

BCS 405. Advanced Bosnian-Croatian-Serbian Language I. 3 Credits.
Advanced readings and discussion in Bosnian-Croatian-Serbian on humanities and social science topics. Previously offered as SECR 405.
Requisites: Prerequisite, BCS 404; permission of the instructor for students lacking the prerequisite.
Gen Ed: BN.
Grading status: Letter grade.

BCS 406. Advanced Bosnian-Croatian-Serbian Language II. 3 Credits.
Advanced readings and discussion in Bosnian-Croatian-Serbian on humanities and social science topics. Continuation of BCS 405. Previously offered as SECR 406.
Requisites: Prerequisite, BCS 405; permission of the instructor for students lacking the prerequisite.
Gen Ed: BN.
Grading status: Letter grade.

BCS 411. Introduction to South Slavic Literatures and Cultures. 3 Credits.
Introduction to South Slavic literatures and cultures with an emphasis on 19th- through 21st-century prose. Taught in English. Some readings in target language for qualified students. Previously offered as SECR 411.
Gen Ed: LA, BN.
Grading status: Letter grade.

BCS 490. Topics in South Slavic Cultures. 3 Credits.
Study of topics in Bosnian, Croatian, Serbian, and other South Slavic literatures and cultures not currently covered in any other course. The specific topic will be announced in advance. Taught in English. Some readings in target language for qualified students. Previously offered as SECR 490.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

CURRICULUM IN GLOBAL STUDIES (GRAD)

Contact Information

Curriculum in Global Studies
Visit Program Website (http://globalstudies.unc.edu)
301 Pittsboro Street, FedEx Global Education Center, Suite 2200

Arne Kalleberg, Chair
arne_kalleberg@unc.edu

Erica Johnson, Director of Graduate Studies
ericaj@email.unc.edu

Zach Ward, Student Services Specialist
wzw59@email.unc.edu

Diana Devereaux, Business Services Coordinator
dmchase@email.unc.edu

The master of arts (M.A.) in global studies is a two-year interdisciplinary "applied research" degree that combines scholarly rigor and practical skills. Students enrolled in the program will focus on analysis of transregional and transnational themes, events, and processes that affect states and societies around the world, such as transnational social movements; the diffusion of, and clashes over, political and social norms; and implications of global trade, investment, production, and employment patterns. The program's courses focus on issues with contemporary global significance and policy relevance. Global studies is an emerging discipline, and UNC–Chapel Hill is at the forefront of defining the field and evolving methodological approaches.

The educational objectives of the program are to:

- Highlight issues of current and emerging global significance;
- Prepare current and future leaders with knowledge and conceptual skills needed for careers in international work; and
- Provide an education that trains individuals to understand and respond to the nature of global change.

Students specialize in one of four concentrations: Global Politics, Global Economics, Global Migration, or Russian, Eurasian, and East European Studies (REEES).

Facebook: facebook.com/UNCGlobalStudies (http://facebook.com/UNCGlobalStudies)

Twitter: twitter.com/UNC_GlobalCurr (http://twitter.com/UNC_GlobalCurr)

Requirements for the Global Studies M.A. Degree

The Curriculum in Global Studies offers graduate work for the degree of master of arts (M.A.) in global studies. Students pursue a concentration in one of the following three thematic areas: global politics, institutions, and societies; global economy; or global migration and labor rights. A concentration in Russian, East European, and Eurasian Studies (REEES) is also available, but it has distinct degree requirements. (See below.)

To earn the global studies M.A., the student must fulfill the following curriculum requirements:

Code	Title	Hours
GLBL 700	Introduction to Research and Theory in Global Studies	3
GLBL 701	Political Economy of Development	3
GLBL 702	Global Politics, Institutions, and Societies	3
GLBL 703	Global Migration and Labor Rights	3
GLBL 992	Master's (Non-Thesis)	3
An appropriate research methods course		3
At least six courses in a concentration determined in consultation with the director of graduate studies		18
Completion and defense of a research or policy paper		
Total Hours		36

Further information concerning the global studies M.A. program may be obtained on the program's Web site (http://globalstudies.unc.edu/masters) or from Dr. Erica Johnson, Director of Graduate Studies, CB# 3263, FedEx Global Education Center, 301 Pittsboro St., University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-3263. Telephone: (919) 962-0663. Fax: (919) 962-8485. E-mail: ericaj@email.unc.edu.

Requirements for the REEES Concentration in the Global Studies M.A. Degree

The global studies M.A. program also offers a concentration in Russian, East European, and Eurasian Studies (REEES). To earn the global studies M.A. with the REEES concentration, the student must fulfill the following requirements:

Code	Title	Hours
Four semester courses in a Slavic or East European language (Czech, Hungarian, Polish, Russian, or Serbo-Croatian)		12
Research methods course appropriate to the student's concentration		3
HIST 783	Introduction to Russian, Eurasian, and East European History	3
GLBL 700	Introduction to Research and Theory in Global Studies	3
GLBL 730	Identities and Transitions	3
GLBL 993	Master's Research and Thesis	3
Elective credits		9
Completion and defense of a thesis		
Total Hours		36

Further information on the REEES concentration in the global studies M.A. program may be obtained on the program's Web site (http://globalstudies.unc.edu/masters) or from Dr. Erica Johnson, Director of Graduate Studies, CB# 3263, FedEx Global Education Center, 301 Pittsboro St., University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-3263. Telephone: (919) 962-0663. Fax: (919) 962-8485. Email: ericaj@email.unc.edu.

Professors

Banu Gökariksel (Geography), Liesbet Hooghe (Political Science), Georges Nzongola-Ntalaja (African, African American, and Diaspora Studies), Elizabeth Olson (Geography), John Pickles (Geography), Andrew Reynolds (Political Science), Graeme Robertson (Political Science).

Associate Professors

Inger Brodey (English and Comparative Literature), Chad Bryant (History), Renée Alexander Craft (Communication), Mark Driscoll (Asian Studies), Nina Martin (Geography), Townsend Middleton (Anthropology), Michael Morgan (History), Christopher Nelson (Anthropology), Eunice Sahle (African, African American, and Diaspora Studies), Iqbal Singh Sevea (History), Mark Sorensen (Anthropology), Meenu Tewari (City and Regional Planning), Michael Tsin (History), Milada A. Vachudova (Political Science).

Assistant Professors

Lucy Martin (Political Science), Brigitte Seim (Public Policy), Angela Stuesse (Anthropology).

Adjunct Assistant Professors

Hannah Gill (Institute for the Study of the Americas), Niklaus Steiner (Center for Global Initiatives)

Teaching Professors

Jonathan Weiler (Global Studies).

Teaching Associate Professors

Erica Johnson (Global Studies), Michal Osterweil (Global Studies).

GLBL

Advanced Undergraduate and Graduate-level Courses

GLBL 401. Paradigms of Development and Social Change. 3 Credits.
This course aims to develop a critical perspective on development -- understood as a cultural logic and a discreet set of practices and policies -- so that we can better contribute to positive social change. Through course material and service learning, students develop an understanding of the relationship between development projects and emancipatory frameworks. Honors version available
Gen Ed: EE- Service Learning.
Grading status: Letter grade.

GLBL 401H. Paradigms of Development and Social Change. 3 Credits.
This course aims to develop a critical perspective on development -- understood as a cultural logic and a discreet set of practices and policies -- so that we can better contribute to positive social change. Through course material and service learning, students develop an understanding of the relationship between development projects and emancipatory frameworks.
Gen Ed: EE- Service Learning.
Grading status: Letter grade.

GLBL 413. Socialist and Decolonial Ecologies. 3 Credits.
This course will focus on the relation of capitalism and anthropogenic climate change and feature Marxist and Indigenous critiques of capitalism's responsibility for climate change. We will feature an interdisciplinary lens - philosophy, feminist geography, cultural anthropology, socialist economics - that will analyze how the anthropocentric subject of the Enlightenment separated itself from its natural environment.
Requisites: Prerequisite, GLBL 210.
Gen Ed: BN.
Grading status: Letter grade.

GLBL 415. Dealing with Difference: Criminal Justice, Race, and Social Movements in Globalization. 3 Credits.
Recommended preparation, GLBL 210. This course is dedicated to understanding how sameness and difference are used and contested globally, in particular through the criminal justice system and its intersection with race and capitalism. The course pays particular attention to popular social movement responses, and what they say to theories of difference, globalization, and social change.
Gen Ed: GL, US.
Grading status: Letter grade.

GLBL 450. Social Change in Times of Crisis: Knowledge, Action, and Ontology. 3 Credits.
Examines dominant, alternative, and emergent narratives of change and the future from around the world. Takes as a premise that we live in a period of multidimensional crises characterized by uncertainty and conflict about how to pursue sustainable economic, ecological, political, social, and cultural projects.
Grading status: Letter grade.

GLBL 481. NGO Politics. 3 Credits.
This course will investigate how nongovernmental organizations emerge, how they structure their organizations, how they function, and how they influence public policy. Honors version available
Grading status: Letter grade.

GLBL 481H. NGO Politics. 3 Credits.
This course will investigate how nongovernmental organizations emerge, how they structure their organizations, how they function, and how they influence public policy.
Grading status: Letter grade.

GLBL 482. Soviet and Post-Soviet Politics and Institutions. 3 Credits.
This course is an introduction to the history and contemporary politics of the post-Soviet region and explores topics of religious, ethnic, and identity politics; international influences; and civil society and social movements. Honors version available
Grading status: Letter grade.

GLBL 482H. Soviet and Post-Soviet Politics and Institutions. 3 Credits.
This course is an introduction to the history and contemporary politics of the post-Soviet region and explores topics of religious, ethnic, and identity politics; international influences; and civil society and social movements.
Grading status: Letter grade.

GLBL 483. Comparative Health Systems. 3 Credits.
This course provides students with an understanding of the origins and comparative performance of a range of international healthcare systems. Honors version available
Grading status: Letter grade.

GLBL 483H. Comparative Health Systems. 3 Credits.
This course provides students with an understanding of the origins and comparative performance of a range of international healthcare systems.
Grading status: Letter grade.

GLBL 484. History and Politics of Central Asia. 3 Credits.
This course is an introduction of the history, politics, and societies of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. The class explores the foundations and conditions of change in the modern history of these societies and investigates how these issues influence contemporary politics.
Grading status: Letter grade.

GLBL 485. Comparative Development. 3 Credits.
This course is an APPLES service-learning course whose goal is to integrate real-world experience working with development-oriented organizations, theoretical discussions about the origins and evolution of development thinking, and exposure to the challenges facing practitioners of development, in some of its many substantive and geographical contexts.
Gen Ed: EE- Service Learning.
Grading status: Letter grade.

GLBL 486. Sports and Globalization. 3 Credits.
This course explores some of the relationships between sports and globalization and will delve into sports as an important social and cultural practice within larger social, cultural, and political forces shaping studies of globalization. Honors version available
Grading status: Letter grade.

GLBL 486H. Sports and Globalization. 3 Credits.
This course explores some of the relationships between sports and globalization and will delve into sports as an important social and cultural practice within larger social, cultural, and political forces shaping studies of globalization.
Grading status: Letter grade.

GLBL 487. Social Movements: Rethinking Globalization. 3 Credits.
This course explores the history, objectives, and manifestations of global social movements. Honors version available
Grading status: Letter grade.

GLBL 487H. Social Movements: Rethinking Globalization. 3 Credits.
This course explores the history, objectives, and manifestations of global social movements.
Grading status: Letter grade.

GLBL 489. Paradigms of Development and Social Change. 3 Credits.
By deliberately juxtaposing questions of global development with an investigation of approaches in community organizing locally--both through course material and service-learning assignments--the course encourages students to develop a more critical understanding of the relationship between development projects and emancipatory frameworks.
Gen Ed: BN, EE- Service Learning.
Grading status: Letter grade.

GLBL 490. Current Topics. 3 Credits.
Current topics in international and area studies. Topics vary by semester.
Grading status: Letter grade.

GLBL 491H. Major Controversies in Human Rights. 3 Credits.
A forum for exploring conceptual and practical problems related to the emergence of a global human rights regime after World War II. The course analyzes relevant arguments, and students will consider whether it is possible to construct a coherent, workable, universally accepted system for articulating and enforcing human rights norms.
Grading status: Letter grade.

GLBL 492H. Global Food Films. 3 Credits.
Thinking about one of our most basic human needs illuminates aspects of our own everyday lives, such as our relationship to nature, other cultures, and to history, as well as our general assumptions about humanity. Students will study films that explore cross-cultural differences in the social and philosophical understandings of what it is to be human.
Gen Ed: VP.
Grading status: Letter grade.

GLBL 492. Global Food Films. 3 Credits.
Thinking about one of our most basic human needs illuminates aspects of our own everyday lives, such as our relationship to nature, other cultures, and to history, as well as our general assumptions about humanity. Students will study films that explore cross-cultural differences in the social and philosophical understandings of what it is to be human.
Honors version available
Gen Ed: VP.
Grading status: Letter grade.

GLBL 560. Human Rights, Ethics, and Global Issues. 3 Credits.
This seminar examines the political, economic and intellectual developments that led to the emergence of human rights as a global phenomenon historically and in the current phase of globalization. Also engages with debates concerning the role of human rights as an ethical philosophy in thinking through global issues.
Gen Ed: GL.
Grading status: Letter grade.

GLBL 691H. Honors in Global Studies. 3 Credits.
Permission of the instructor. Preparation for writing the honors thesis.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

GLBL 692H. Honors in Global Studies. 3 Credits.
Permission of the instructor. Completion of the honors thesis and an oral examination of the thesis.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

GLBL 700. Introduction to Research and Theory in Global Studies. 3 Credits.
Global studies examines world systems, transnational processes, and global-local interactions from a multi-disciplinary perspective. This course will introduce students to current interdisciplinary theoretical approaches to global studies and examine the primary topics of contemporary research relating to the rise of a complex but increasingly integrated world society.
Grading status: Letter grade.

GLBL 701. Political Economy of Development. 3 Credits.
Presents foundational theories, concepts, and empirical research regarding the political economy of development. In content, course will define this topic broadly, from considering the political and economic dynamics of the international community (e.g., aid) as well as the intersection of economics and politics in comparative perspective (e.g., democratization and development).
Grading status: Letter grade.

GLBL 702. Global Politics, Institutions, and Societies. 3 Credits.
This course will address global governance and global public policy; interactions among states, international organizations, businesses, social movements, and NGOs. It addresses the diffusion and promotion of democracy and other norms and the interactions between political institutions and social cleavages. Students with this concentration must take one appropriate methodology class.
Grading status: Letter grade.

GLBL 703. Global Migration and Labor Rights. 3 Credits.
The course will focus on the interactions of migration, labor rights, human rights, economics, health disparities, and cross-border tensions. Students with this concentration will also take at least one appropriate disciplinary methodology class.
Grading status: Letter grade.

GLBL 710. Monitoring and Evaluation for Peacebuilding Interventions. 2 Credits.
This introductory course offers a review of the core concepts, skills and practical steps in monitoring and evaluation of coexistence and peacebuilding interventions. The course will stress participatory methods in monitoring and evaluation, in which multiple stakeholders are involved in the process of planning, collecting, interpreting, synthesizing, and using information. The course will feature case studies, proposals, and organizational evaluation plans and reports.
Grading status: Letter grade.

GLBL 730. Identities and Transitions. 3 Credits.
Capstone course for the REEES concentration in the Global Studies MA program. Interdisciplinary course focusing on the variety of problems encountered by the societies of East European countries and successor states of the former Soviet Union in their transition from communism to democracy.
Grading status: Letter grade
Same as: POLI 746.

GLBL 890. Special Topics in Global Studies. 1-3 Credits.
Instructors and topics vary from semester to semester.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

GLBL 893. Global Studies Internship and Field Experience. 1-9 Credits.
Students may earn academic credit toward degree requirements for completion of an internship or other field experience. Internship and work load must be approved by the Director of Graduate Studies. Specific guidelines must be followed earn academic credit.
Grading status: Letter grade.

GLBL 896. Independent Reading and Research. 3 Credits.
Permission of the instructor. Reading and research on special topics in global studies.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

GLBL 992. Master's (Non-Thesis). 3 Credits.
Master's thesis substitute paper; permission of the instructor required.
Repeat rules: May be repeated for credit.

GLBL 993. Master's Research and Thesis. 3-6 Credits.

SCHOOL OF GOVERNMENT (GRAD)

Contact Information

School of Government
Visit Program Website (http://www.sog.unc.edu)

Michael R. Smith, Dean

Dr. Bill Rivenbark, MPA Program Director
rivenbark@sog.unc.edu

The School of Government was established at UNC–Chapel Hill in 1931 as the Institute of Government. The school has long focused on state and local government in the broader study of government, public law, public finance, and public administration. Today, it is the nation's leading university-based provider of instructional and advisory services to state and local government practitioners. Through instructional programs, advising, research, and publishing, the School of Government advances general understanding about government and shares that information with practitioners and other scholars. The school offers a program of courses leading to the master of public administration (M.P.A.) degree.

Master of Public Administration (M.P.A.) Degree Program

William C. Rivenbark, *Director*

M.P.A. Program Teaching Faculty

Afonso, Allen, Allison, Berner, Ballard, Barbaree, Barnes, Barrett, Brantley, Brenman, Brown, Cody, Crumpton, Curry, Dehart-Davis, Diaz, Doi, Edmundson, Ferrell, Fikes, Gangi, Glasener, Gorely, Heckscher, Hemphill, Henderson, Honeycutt, Hoyman (Department of Political Science), Hughes, Hurt, Jacobson, Kunzenski, McCall, McCartha, Millonzi, Morgan, Morse, Mulligan, Nelson, O'Brien, Quinterno, Rivenbark, Roenigk, Stenberg, Stephens, Strachota, Strecker, Szypszak, Towne, Tufts, Vrabel, Wade and Wilkins.

Program Overview

Rated among the among the nation's best, the M.P.A. program takes as its mission preparing public service leaders. In pursuing this mission, the program offers a curriculum that helps students reach their potential for leadership through rigorous academic study and practical experience. The M.P.A. program is offered in two formats, on campus and online (MPA@UNC). The online format is designed for working professionals and others who aspire to become public service leaders but require the flexibility of an online format.

Accredited by the Network Association of Schools of Public Affairs and Administration, the M.P.A. program has produced graduates serving in governmental and nonprofit organizations. In local government, alumni serve as city and county managers, budget and finance directors, personnel directors, and in other administrative positions. In state government, alumni serve in management and staff positions in policy planning, finance and management, personnel, water resources, health services, education, and other areas. Alumni serve as administrators and analysts in a variety of agencies at the federal level, including the Office of Management and Budget, the Environmental Protection Agency, the Department of Health and Human Services, the Department of Labor, the Government Accountability Office, and on Senate and House committee staffs. In the nonprofit sector, M.P.A. alumni administer programs in the arts, education, economic development, and human services.

More information is available on the program's Web site (http://www.mpa.unc.edu).

Admission Requirements

The M.P.A. program welcomes applicants from diverse backgrounds. While many applicants are from the social sciences, other applicants have undergraduate majors in architecture, business administration, engineering, English, history, industrial relations, and many other fields.

The requirements for admission are

- A bachelor's degree
- A recommended grade point average (GPA) of 3.0 or higher
- A minimum of three semester hours of credit in American government and politics (This is not a requirement to apply for admission but would need to be completed prior to the first day of fall classes if offered admission.)
- A recommended score that is at or greater than the 50th percentile for both the verbal and quantitative sections of the Graduate Record Examination (GRE)
- A purpose statement
- Three letters of recommendation
- An oral interview with the M.P.A. admissions committee

All admissions decisions are made during the spring for fall semester matriculation into the on-campus format. Applications must meet the deadlines of The Graduate School. Admissions decisions for MPA@UNC are made during three terms: fall matriculation decisions are made in the summer; spring matriculation decisions are made in the fall, and summer matriculation decisions are made in the spring.

Financial Aid

The M.P.A. program provides financial assistance to many of its students. Research assistantships and scholarships are available to top candidates. Students also become involved in School of Government projects or work in governmental or nonprofit organizations as graduate assistants. MPA@UNC also provides scholarships to top candidates.

Coursework and requirements for the M.P.A. degree include a minimum of 45 semester hours of credit, a practicum, a portfolio, and a final oral examination. These requirements are designed to ensure that each graduate possesses the core set of competencies that supports the M.P.A. program's mission of preparing public service leaders.

Core course requirements are as follows:

- PUBA 709 - Public Administration Institutions and Values (3)
- PUBA 710 - Organization Theory (3)
- PUBA 711 - Public Service Leadership (3)
- PUBA 719 - Public Administration Evaluation and Analysis I (3)
- PUBA 720 - Public Administration Evaluation and Analysis II (3)
- PUBA 721 - Professional Communications (3)
- PUBA 723 - Human Resource Management (3)
- PUBA 731 - Public Financial Management (3)
- PUBA 760 - Law for Public Administration (3)
- PUBA 745 - Professional Work Experience (1.5)
- PUBA 746 - M.P.A. Portfolio (1.5)

In addition to the core course requirements, each student completes 15 semester hours of elective courses.

Professors

David N. Ammons, Adjunct and Former Albert Coates Professor, Public Administration
Maureen M. Berner, Public Administration, Program Evaluation
Frayda S. Bluestein, David Lawrence Distinguished Professor of Public Law and Government, Local Government Law
Anita Brown-Graham, Public Law and Government, Public Policy, and Director, ncIMPACT
Shea R. Denning, Public Law and Government, Property Tax Law
Leisha Dehart-Davis, , Public Management and Organization Development
James C. Drennan, Adjunct and Former Albert Coates Professor, Courts Law and Judicial Administration
Cheryl D. Howell, Albert Coates Distinguished Professor of Public Law and Government, Judicial Education and Administration
Willow S. Jacobson, Albert and Gladys Hall Coates Distinguished Term Professor for Teaching Excellence, Public Administration and Government, Director of LGFCU Fellows Program, Human Resource Management and Organizational Theory
Robert P. Joyce, Charles Edwin Hinsdale Distinguished Professor of Public Law and Government, Education Law
Diane M. Juffras, Albert and Gladys Hall Coates Distinguished Term Professor of Public Law and Government, Employment Law
Kara Millonzi, Albert and Gladys Hall Coates Distinguished Term Professor of Public Law and Government, Local Government and Finance
Christopher Tyler Mulligan, Public Law and Government, Community and Economic Development, and Director, Development Finance Initiative
David W. Owens, Gladys Hall Coates Distinguished Professor of Public Law and Government, Environmental and Land Use Law
William C. Rivenbark, Public Administration and M.P.A. Program Director
John Rubin, Albert Coates Distinguished Professor of Law and Government, Criminal Law and Procedure
Jessica Smith, W.R. Kenan Jr. Distinguished Professor of Public Law and Government, Criminal Law and Procedure
Michael R. Smith, Dean
Carl W. Stenberg III, James E. Holshouser Jr. Distinguished Professor, Public Administration
Charles Szypszak, Albert Coates Distinguished Professor of Public Law and Government, Real Estate Law
Thomas H. Thornburg, Public Law and Government, Criminal Law, Senior Associate Dean
Aimee N. Wall, Public Policy, Legislative Education and Social Services Law
Richard B. Whisnant, Gladys Hall Coates Distinguished Professor of Public Law and Policy, Environmental Law
Jeff Welty, Public Law and Government, Criminal Law, and Director, Judicial College

Associate Professors

Whitney Afonso, Local Government Budgeting and Finance
Ann Anderson, Albert and Gladys Hall Coates Distinguished Term Associate Professor of Public Law and Government, Courts and Estate Law
Mark F. Botts, Public Law and Government, Mental Health Law
Adam S. Lovelady, Public Law and Government, Land Use Law and Planning
James Markham, Thomas Willis Lambeth Distinguished Chair of Public Law and Government, Criminal Law
Christopher B. McLaughlin, Public Law and Government, Tax Law
Jill D. Moore, Public Law and Government, Public Health Law
Jonathan Q. Morgan, Public Administration and Government, Economic Development
Ricardo S. Morse, Public Administration and Government
Kim L. Nelson, Albert and Gladys Hall Coates Distinguished Term Associate Professor of Public Administration and Government, Local Government Management
John B. Stephens, Public Administration and Government , Inter-Agency and Public Policy Dispute Resolution
Shannon H. Tufts, Public Law and Government, and Director, Center for Public Technology

Assistant Professors

Trey Allen, Local Government Law
Sara DePasquale, Public Law and Government, Juvenile Law
Jacquelyn Green, Public Law and Government
Meredith Smith, Albert and Gladys Hall Coates Distinguished Term Assistant Professor of Public Law and Government, Clerks of Court

Professor of the Practice

Peg Carlson, Public Leadership and Organizational Development, and Director, Center for Public Leadership and Governance

Teaching Professor

Gregory S. Allison, Governmental Accounting and Financial Reporting

Teaching Associate Professors

Dona Lewandowski, Public Law and Government
Jeffrey A. Hughes, Environmental Services and Programs, Director of Environmental Finance Center

Lecturers

Kirk Boone, Public Finance and Government
Margaret Henderson, Public Administration
Norma Houston, for Public Law and Government
Dale Roenigk, Performance Measurement and Public Administration, Director of the North Carolina Benchmarking Project

Adjunct and Visiting Faculty

Monica Allen, Adjunct Instructor
Evans Ballard, Adjunct Instructor
Blossom Barrett, Adjunct Instructor
Justin Barbaree, Adjunct Instructor
Julie M. Brenman, Adjunct Instructor
Audrea Caesar, Adjunct Instructor
Christopher Cody, Adjunct Instructor
John Crumpton, Adjunct Instructor
Patrick Curry, Adjunct Instructor
Ana-Laura Diaz, Adjunct Instructor
Courtney Doi, Adjunct Instructor
Sharon Edmundson, Adjunct Instructor
Tara Lynne Fikes, Adjunct Instructor
Kristen Glasener, Adjunct Instructor
Jennifer Heckscher, Adjunct Instructor
Frances Henderson, Adjunct Instructor
Craig Honeycutt, Adjunct Instructor
Mary Hemphill, Adjunct Instructor
Christi Hurt, Adjunct Instructor

John Kuzenski, Adjunct Instructor
Jamie McCall, Adjunct Instructor
Emily McCartha, Adjunct Instructor
Tracy Miles, Adjunct Instructor
Kelley O'Brien, Adjunct Instructor
John Quinterno, Adjunct Instructor
Dennis Strachota, Adjunct Instructor
Amy Strecker, Adjunct Instructor
Sarah Towne, Adjunct Instructor
Joseph Vrabel, Adjunct Instructor
Amy Wade, Adjunct Instructor
Joy Wilkins, Adjunct Instructor

GOVT

GOVT 660. Municipal Administration. 4 Credits.
This course covers municipal government organization and management, finance, personnel, planning and economic development, and the administration of specific municipal functions.
Grading status: Letter grade.

GOVT 661. County Administration. 4 Credits.
This course covers county government organization and management, finance, personnel, planning, and economic development, and the administration of specific municipal functions.
Grading status: Letter grade.

GOVT 662. Information Technology Project Management and Leadership. 3 Credits.
Examines the public sector environment as it relates to information technology development. Special attention focused on the complex environment and its influence on information technology-based solutions.
Grading status: Letter grade.

GOVT 663. Public Executive Leadership Academy. 6 Credits.
The Public Executive Leadership Academy is designed for North Carolina city and county managers to understand themselves as leaders and to prepare the organization to work with others in improving the quality of life within the community.
Grading status: Letter grade.

GOVT 664. Chief Information Office Certification Program. 5 Credits.
The CIO Certification Program is designed for chief information officers of local governments in North Carolina. The course lays the foundation for addressing the most critical issues facing IT leadership in local government and equips leaders with tools to manage and improve their organizational assets.
Grading status: Letter grade.

PUBA

Advanced Undergraduate and Graduate-level Courses

PUBA 401. State and Local Governance. 3 Credits.
Introduction to local/state public service, including: governmental institutions; ethics and public values; and core functions of administrative governance. Discussions led by MPA faculty with practicing public and nonprofit administrators.
Gen Ed: EE- Service Learning.
Grading status: Letter grade.

PUBA 402. Promoting Change through the Nonprofit Sector. 1 Credit.
Selected students have the opportunity to build on their experience of grant making to learn more about the nonprofit and philanthropic sectors. Students will follow up with the agencies receiving grants from the spring class and ensure completion of the activities required by the agreements through a reporting and site visit process.
Requisites: Prerequisite, HBEH 611.
Grading status: Pass/Fail.

PUBA 635. Military Leadership and Public Service. 3 Credits.
Leadership as taught and demonstrated in the military and how it translates to leadership in public service, including the interrelationship of the military and other public service and the transition of veterans to civilian leadership roles.
Grading status: Letter grade
Same as: PWAD 635.

Graduate-level Courses

PUBA 709. Public Administration Institutions and Values. 3 Credits.
This foundation course introduces students to the historical and contemporary social, economic, political, and ethical context of public administration and governance in the United States. Students gain an understanding of public institutions and values and develop skills for interpreting and critically evaluating American public service issues.
Grading status: Letter grade.

PUBA 710. Organization Theory. 3 Credits.
Provides a conceptual and experiential grounding in theories of management and organizational operation. Students learn how to analyze organizations and their environments from multiple perspectives. Students systematically examine important dimensions of organizational life: what motivates people, how decisions are made, challenges of diversity, conflict, and power dynamics.
Grading status: Letter grade.

PUBA 711. Public Service Leadership. 3 Credits.
Students learn about their leadership style and values, as well as strengths and weaknesses, with regard to public leadership at the personal, interpersonal, organizational, and community levels. Readings, assignments, and class activities focus on developing knowledge and skills necessary to lead successfully in public service settings.
Grading status: Letter grade.

PUBA 719. Public Administration Analysis and Evaluation I. 3 Credits.
First course in a two-course sequence introducing students to applied research design, data collection, data management, data analysis, and analytical reporting to allow them to conduct original research, be informed consumers of other research, and ultimately improve public program planning and evaluation decisions.
Requisites: Co-requisite, PUBA 720.
Grading status: Letter grade.

PUBA 720. Public Administration Analysis and Evaluation II. 3 Credits.
Second course in a two-course sequence introducing students to applied research design, data collection, data management, data analysis, and analytical reporting to allow students to conduct original research, be informed consumers of other research, and ultimately improve public program planning and evaluation decisions.
Requisites: Prerequisite, PUBA 719.
Grading status: Letter grade
Same as: POLI 725.

PUBA 721. Professional Communications. 3 Credits.
Prepares students to communicate clearly and effectively as public service leaders, which includes reading, listening, and thinking critically; writing and speaking clearly, concisely, and unambiguously; giving organized and convincing oral presentations; and using appropriate tools and tone in preparing oral and written communications for diverse audiences.
Grading status: Letter grade.

PUBA 722. Federal Policies and Institutions. 3 Credits.
The motivations of public agency officials, interactions between bureaucracies and other political actors, and alternative strategies to control bureaucratic power and discretion in making, implementing, and evaluating public policies.
Grading status: Letter grade
Same as: POLI 722.

PUBA 723. Human Resource Management. 3 Credits.
Students gain knowledge of the behaviors and practices of human resource management, as well as an overview of diversity and inclusion in public sector work-forces. Class learning is both theoretical and experiential.
Grading status: Letter grade.

PUBA 725. Collaborative Governance. 3 Credits.
Required preparation, minimum of three undergraduate credit hours of American government. Explores contemporary thought on networks and governance and its place in public administration theory and practice. Examines processes and structures, and develops skills relevant to collaborative public management.
Grading status: Letter grade.

PUBA 730. Governmental and Not-for-Profit Accounting and Reporting. 3 Credits.
Teaches the principles of accounting and financial reporting in governmental and not-for-profit environment. Provides skills for analyzing the financial condition of governments and the efficiency and effectiveness of governmental programs.
Grading status: Letter grade.

PUBA 731. Public Financial Management. 3 Credits.
Introduces students to the basic principles of public finance and covers the fundamental areas of public financial management, including the operating and capital budgeting processes used to obtain and allocate public resources, the role of public debt, and the issuance of annual financial statements.
Grading status: Letter grade.

PUBA 732. Economics for Public Administrators. 1.5 Credit.
Develop an understanding of the relationship between government administration and microeconomic outcomes, as well as the effect of macroeconomic events on government budgets and service demands.
Grading status: Letter grade.

PUBA 733. Strategic Information Technology Management. 1.5 Credit.
This course provides public managers with the basic knowledge to successfully invest in and manage strategic information technology projects.
Grading status: Letter grade.

PUBA 734. Community Development & Revitalization Techniques. 3 Credits.
Community revitalization requires mastery of community development methods, the real estate development process, and public-private partnerships. Techniques include demographic trend analysis, stakeholder identification, government entitlement review, area and parcel analysis, market research, and pro forma financial analysis.
Grading status: Letter grade
Same as: PLAN 764.

PUBA 735. Community Revitalization Applied. 3 Credits.
Students apply their skills in business, planning, or public administration to actual community revitalization projects in North Carolina communities. Projects require an understanding of community development methods, the real estate development process, and public-private partnerships. Students will manage client relationships and learn how their skills contribute to solving community challenges.
Repeat rules: May be repeated for credit. 3 total credits. 1 total completions.
Grading status: Letter grade
Same as: PLAN 735.

PUBA 736. Advanced Budgeting & Financial Analysis. 1.5 Credit.
The purpose of the course is to assist students with further development of their skills, approaches, and philosophies in the functional areas of public budgeting and financial management. Requires students to analyze case situations in public organizations, identify possible solutions in response to their analysis, and justify final recommendations.
Grading status: Letter grade.

PUBA 737. Public Sector Labor Relations. 3 Credits.
This course explores the dynamics of labor relations in the public sector (local, state, and federal government). Includes an overview of current labor issues and both an arbitration and bargaining scenario. The course is designed for any student who might work in the public sector at any level.
Grading status: Letter grade.

PUBA 738. Managing Local Government Services. 3 Credits.
Students learn about the operations functions of local government. Each class will focus on a single local government department. Students will understand techniques and tools used to manage local governments effectively, efficiently, and equitably. Students learn the current issues, management trends, and problems associated with each local government department function.
Grading status: Letter grade.

PUBA 739. Intergovernmental Relations. 1.5 Credit.
This course is designed to enhance the practical skills of future public administration practitioners in navigating our complex intergovernmental system and supporting elected officials and others in influencing the outcome of public policy issues, consistent with professional ethics guidance.
Grading status: Letter grade.

PUBA 740. Decision Analysis. 3 Credits.
Course will provide introduction to a process for systematically thinking about decisions and valuable techniques for analyzing decisions. Students will learn how to construct models for decision making and how to use these models to analyze decisions
Grading status: Letter grade.

PUBA 741. State Government. 3 Credits.
Course examines the legal, administrative, and organizational framework of state government and its interrelationship with federal and local governments. Topics include legal authorities, federalism, roles and responsibilities of the executive, legislative, and judicial branches, legislative process by which laws are enacted, state budget and revenues, influence of external factors.
Grading status: Letter grade.

PUBA 743. Diversity in Public Administration. 1.5 Credit.
The U.S. public sector workforce is increasingly diverse in race, ethnicity, gender, religion, socioeconomic status, sexual preference, physical and mental abilities, and gender identity. Increased workplace diversity requires a new knowledge base, which this course seeks to impart through thought-provoking readings, in-class exercises, and lively and respectful discussions.
Grading status: Letter grade.

PUBA 744. MPA Immersion. 1.5 Credit.
How do concepts learned in the classroom translate into real-world practice? The Carolina MPA Immersion Experience offers both online and on-campus students the opportunity to make this connection and learn from MPA faculty with expertise in government and non-profit administration. Held at the UNC School of Government, the course allows students and faculty to come together for three days to focus on a relevant topic in the field of public administration.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 1 total credits. 5 total completions.
Grading status: Letter grade.

PUBA 745. Professional Work Experience. 1.5 Credit.
Additionally, students will have to have completed the Professional Work Experience Practicum prior to enrolling in this course. The M.P.A. professional work experience consists of 10 weeks of full-time employment in a public agency or nonprofit organization. This course requires students to demonstrate and extend this learning experience within the context of public service leadership and management.
Requisites: Prerequisites, PUBA 709, PUBA 710, PUBA 719, PUBA 720, PUBA 721, and one additional core course from the following: PUBA 723, PUBA 731, or PUBA 760.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PUBA 746. M.P.A. Portfolio. 1.5 Credit.
The purpose of the portfolio is for students to demonstrate and further develop their public service leadership potential through a collection of academic and professional products. Students take this course during their final semester, allowing them to integrate and build upon the core competencies of the program.
Requisites: Prerequisites, PUBA 709, PUBA 710, PUBA 711, PUBA 719, PUBA 720, PUBA 721, PUBA 723, PUBA 731, PUBA 760, and PUBA 745.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PUBA 749. Ethical and Effective Public Administration. 1.5 Credit.
The role(s), function(s), and strategy of public administrators in the formulation, adoption, and implementation of public policies. Policy from the perspective of the policy maker; cases exploring the relationship of theories to actual policy processes.
Requisites: Prerequisites, POLI 210, 211, 212, 214, and 226.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PUBA 751. City and County Management. 3 Credits.
Nature of city or county manager's job: expectations of elected body, staff, public and professional peers. Examines contemporary issues in departmental operations that have significant effect on how manager's performance is perceived.
Grading status: Letter grade.

PUBA 752. Productivity Improvement in Local Government. 3 Credits.
This course will acquaint students with the concept of productivity, its importance in the public sector, principal techniques used to improve productivity in local government, and barriers to productivity improvement initiatives.
Grading status: Letter grade.

PUBA 753. Performance Management in Local Government. 3 Credits.
The purpose of Performance Management in Local Government is to introduce students to how local officials measure the inputs, outputs, and outcomes of service delivery and how they use these performance data for making management and policy decisions. The course also includes how local officials use other types of data to information decision-making, including content analysis, benchmarking, financial condition analysis, and benefit-cost analysis.
Grading status: Letter grade.

PUBA 756. Nonprofit Management. 3 Credits.
Examination of the managerial challenges posed by nonprofit organizations and of techniques and practices used by managers of nonprofit organizations.
Grading status: Letter grade.

PUBA 757. Financial Management of Nonprofit Organizations. 3 Credits.
Provides basic financial skills for leaders of nonprofits, including bookkeeping fundamentals, interpreting financial statements, budgeting, cash management and investment, and legal compliance.
Requisites: Prerequisites, SOWO 517 and 570.
Grading status: Letter grade
Same as: SOWO 885.

PUBA 758. Navigating Nonprofit Local Government. 3 Credits.
This course is designed for graduate students who are seeking professional positions in local government or nonprofits. The overall objectives are to exchange information about issues of mutual concern to both nonprofits and governments.
Grading status: Letter grade.

PUBA 760. Law for Public Administration. 3 Credits.
Introduction to basic law subjects likely to be encountered in public administration. Topics include constitutional foundations, due process and equal protection, and First Amendment rights; property, contracts, employment, torts, criminal law, administrative law, and public ethics laws; and basic legal research, managing litigation, and working with lawyers.
Grading status: Letter grade.

PUBA 761. Local Government Law. 1.5 Credit.
Overview of key legal concepts affecting local government operations. Topics include relation to federal/state governments, legal structures, finance and regulatory powers, plus introduction to the legal system and analysis.
Grading status: Letter grade.

PUBA 762. Administrative Law Development and Applications. 3 Credits.
Addresses legal issues in the exercise of governmental power by federal, state, and local agencies in the United States. Topics include legislative and executive oversight, rule making, adjudication, and judicial review. Fall.
Grading status: Letter grade.

PUBA 763. Grant Writing and Evaluation. 1.5 Credit.
Nonprofit leaders and public officials rely on grants to help fund their grand plans. In this course you will learn the process of finding grants, how to prepare a grant proposal, and how to plan for and manage grant funds. This course will address some of the similarities and differences between the funding process from federal/state agencies and private foundations. May not be taken in addition to PUBA 764. On campus MPA students only.
Grading status: Letter grade.

PUBA 764. Grant Writing. 3 Credits.
This course is designed to acquaint students with the grant seeking process for not-for-profit and public sector agencies. Through a review of specific writing techniques, students will practice and learn how to produce proposals that are comprehensive, cogent, and accountable to the objectives of the grantor agency.
Grading status: Letter grade.

PUBA 765. Capital Budgeting and Finance. 1.5 Credit.
Analysis of alternative approaches to planning and administering the budgets and financial operations of public agencies. Extensive use of case materials.
Requisites: Prerequisite, PUBA 214.
Grading status: Letter grade.

PUBA 768. Mediation Skills for Public Organizations. 1.5 Credit.
Workshop-style course focuses on workplace and service provision conflicts to develop mediation skills; is comprised of short lectures, demonstration, and student practice of a mediation model/specific skill sets.
Grading status: Letter grade.

PUBA 769. Facilitation Skills for Public Sector Managers. 1.5 Credit.
Course is workshop-style that includes advance reading, videos and online assignments; concentrated two-day instruction on skills; and a reflection paper. Course focuses on inter-organization and community settings to develop facilitation skills and is comprised of short lectures, demonstration, and student practice of facilitation strategies.
Grading status: Letter grade.

PUBA 770. Community Economic Development: Strategies and Choices. 3 Credits.
The goal of this course is to acquire a command of the fundamentals of economic development from the community's perspective. This is done by reading and absorbing the theoretical literature on economic development from the fields of urban politics, planning, sociology, economics, political science, and sociology.
Grading status: Letter grade
Same as: POLI 770.

PUBA 771. Managing Economic Development. 3 Credits.
Emphasizes the practical application and implementation of various approaches to economic development. Students will apply tools/strategies by doing case studies and small group projects based on real-world scenarios faced by local practitioners.
Grading status: Letter grade.

PUBA 777. Technology & Community Engagement. 3 Credits.
This course is about understanding community engagement, about how to get people involved with, invested in, and informed about your organization, and learning how to identify, assess, and propose the tools that will help your organization use community engagement to further its mission.
Grading status: Letter grade.

PUBA 778. Strategic Information Technology Management. 3 Credits.
This course provides public managers with the basic knowledge to successfully manage technology projects and government information. The use of information technology has become an indispensable part of the public sector. Governments now use technology to communicate with citizens, disseminate information, and engage in digital democracy. This course is for oncampus MPA students. Students cannot take PUBA 777 in addition to this course.
Grading status: Letter grade.

PUBA 780. Special Topics in Public Administration. 1-3 Credits.
Seminar in selected areas of public administration. Topics will vary from year to year. May be repeated for credit.
Requisites: Prerequisite, permission of the instructor.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

PUBA 781. Directed Readings in Public Administration. 1-3 Credits.
Directed readings in a special field under the direction of a member of the graduate faculty.
Grading status: Letter grade.

PUBA 787. Applied Environmental Finance: How to Pay for Environmental Services. 3 Credits.
How can governments, communities, organizations, and businesses fund environmental services? This applied course reviews the diverse tools and strategies that environmental service providers use to pay for programs. The course will focus on environmental services related to: drinking Water, wastewater, storm-water, watershed protection, energy efficiency, renewable energy, sustainability, and wetlands.
Grading status: Letter grade
Same as: PLAN 787, ENVR 787.

PUBA 900. Research in Public Administration. 1-15 Credits.

DEPARTMENT OF HEALTH BEHAVIOR (GRAD)

Contact Information

Department of Health Behavior
Visit Program Website (http://www.sph.unc.edu/hb)

Kurt M. Ribisl, Chair

Health Behavior is a department within the Gillings School of Global Public Health.

Professors

Noel Brewer, Biases in Health Decisions, Health Communication, Decision Making, Cancer Prevention and Control
Eugenia Eng, Community-Based Participatory Research, Structural Issues of Race and Class, Lay Health Advisor Interventions
Edwin Fisher, Diabetes, Community and Peer Interventions, Chronic Disease Management, Smoking and Smoking Cessation
Vivian Go, Global Health, Opiates, HIV/AIDS, Sexually Transmitted Diseases, Substance Abuse, Violence Prevention
Carol Golin, Adherence to Chronic Medical Therapy, Patient-Provider Communication, Medical Decision Making for HIV Therapy and Prevention
Lisa Hightow-Weidman, mHealth, Social Media, Technology-Based Interventions, HIV/AIDS, HIV Care Continuum, LGBT
Laura Linnan, Applied Research in Worksites and Other Community-Based Settings, Multiple Risk Factor Behaviors, Organizational Change
Leslie A. Lytle, Obesity, Nutrition, Cardiovascular Disease, Evidence-Based Public Health
Suzanne Maman, HIV/AIDS, International Health, Associations Between HIV and Violence
Kurt Ribisl, Tobacco Control Policy, Built Environment and Health, Cancer Prevention and Control
Barbara Rimer, Cancer Control and Prevention, Tailored Print Communications
Deborah Tate, Obesity, Computer/Internet Interventions, Health Communication

Associate Professor

Clare Barrington, Global Health, Infectious Diseases, Minority Health, Sexually Transmitted Diseases

Assistant Professors

Nisha Gottfredson, Statistical Models, Research Methods, Substance Abuse
Megan Ellenson Landfried, Community Engagement, Culturally Relevant Interventions
Derrick Matthews, Minority Health, HIV/AIDS,Sexual Behavior, LGBT

Kate Muessig, Global Health, Health Communication, Infectious Diseases, Mental Health, Minority Health, Sexually Transmitted Diseases
Nora Rosenberg, HIV/AIDS, Adolescent Health, Global Health, Women's Health, Sexual Behavior

Professor of the Practice

Jim Herrington, Global Health

Research Associate Professors

Carolyn Crump, Worksite Health Promotion and Evaluation, Program Planning, Management
K. Elizabeth (Beth) Moracco, Women's Health, Violence Against Women, Evaluation Research

Research Assistant Professors

Alexandra Lightfoot, Community-Based Participatory Research, Health Disparities, Healthy Choices and Behaviors to Support the Growth and Development of Youth, Educational Inequities
H. Luz McNaughton Reyes, Adolescent Health, Reproductive Health, Global Health
Ha Viet Tran, HIV/AIDS, Substance Abuse, Global Health

Clinical Associate Professors

Lynn White Blanchard, Research Around Public Service (Including Community Partnerships and Collaborations), Program Evaluation, Service Learning
Jason B. Smith, Women's Health, Global Health, Sexual Health

Clinical Assistant Professor

Shelley Golden, Health Policy, Injury and Violence Prevention, Tobacco Control, Women's Health

Adjunct Professors

Robert DeVellis, Scale Development, Research Methods, Chronic Disease Management
Vangie Foshee, Adolescent Violence Prevention
Robert Foss, Alcohol and Transportation-Related Injury, Adolescent Injury, Social Policy Approaches to Injury Prevention
Daniel Halperin, HIV Epidemiology and Prevention, Behavior Change Approaches, Family Planning/Population, Public Health Research in Developing Countries
Krista Perreira, Child Development and Adolescence, Mental Health and Substance Abuse, Latino Health, Education, and Employment, Demography of Immigration
Christopher Ringwalt, Drug Prevention, Survey Research, Program Evaluation
Carol Runyan, Injury Control, Violence Prevention, Worksite Injury Prevention
Michael Schulman, Occupational Injury; Injury Prevention and Control; Work, Violence and Health among Adolescents
Paschal Sheeran, Social Psychology, Health Behavior Change

Adjunct Associate Professors

Johanna Birckmayer, Health Policy, Tobacco Control
Lori Carter-Edwards, Aging, Evidence-based Public Health, Minority Health, Women's Health
Kristie Foley, Cancer Prevention, Global Health, Minority Health, eHealth, Public Health Ethics and law, Tobacco Prevention and Control
Susan Gaylord, Alternative Therapies and Integrative Health Care, Aging, Health Beliefs and Care Pathways
Christine Jackson, Parenting and Family-Based Public Health, Health Communication, and Community-Based Intervention
Kathleen MacQueen, Qualitative Research Methods and Approaches in Research Design, Ethics in Public Health and Research (Including Applied Ethics Research), Social and Behavioral Dimensions of Clinical Trials Research (Especially HIV Prevention Trials)

Kathryn Pollak, Patient-Physician Communication, Smoking Cessation, Health Disparities
Wizdom Powell, Men's Health, Population Health Disparities, Social and Health Behavior Theory
Scott Rhodes, Sexual Health, HIV and Sexually Transmitted Disease Prevention, Health Disparities Among Vulnerable Communities
LaHoma Romocki, HIV/AIDS, Reproductive Health, Health Literacy, Diabetes, HPV Vaccine Feasibility, Cancer
Celette Skinner, Cancer Screening, Cancer Genetics, Tailored Interventions
Paige Hall Smith, Violence Against Women, Women's Health, Breastfeeding
Brian Southwell, Health Communication
Deborah Stroman, Diversity and Inclusion, Sport Business, Entrepreneurship, Marketing, Leadership Development
Anna Waller, Injury Prevention and Control, Data System Users (especially Database Design), Emergency Department Data and Surveillance
Godfrey Woelk, Project Design, Execution, and Analysis in HIV Prevention and Care, Maternal Health, Hypertensive Diseases of Pregnancy, Child Health, Community-Based HIV and Sexually Transmitted Disease Prevention
Michael Yonas, Social and Contextual Factors Associated with Youth Violence and Dating Violence, Community-Based Participatory Research

Adjunct Assistant Professors

Mary Altpeter, Health Promotion and Older Adults, Particularly Older Women; Community-Based Research and Health Promotion with Older Adults; Community-Based Research with Rural Populations
Justin Byron, Health Communication, Tobacco Control
Ewan Cobran, Cancer, Health Disparities
Delesha Miller Carpenter, Chronic Disease Self-Management, Patient-Provider Communication, Social Support
Lori Carter-Edwards, Cardiovascular Disease, Community Engagement, Evidence-based Public Health, Faith-based Organizational Health Promotion, Diabetes, Obesity, Health Disparities, Health Equity, Hypertension
Mary Davis, Prevention Education, Program Evaluation, Program Planning
Robert Flewelling, Substance Abuse Prevention, Community-Based Intervention, Adolescent Health Risk Behaviors
Moses Goldman, Minority Health, Obesity, Public Health Leadership, Community Engagement
Jennifer Gierisch, Cancer Prevention/Control, Health Communication, Chronic Disease Management, Mental Health, Tobacco Use Prevention/Control, Women's Health
Lisa Gilbert, Sexual and Reproductive Health, STD/HIV Prevention and Sex Education, Health Communication, Behavior Change Theory and Practice, Adolescent and Women's Health
Susan Haws, Adolescent Health, School-based Health, Substance Abuse
Megan Lewis, Social Relationships and Health, Cardiovascular Disease, Social Ecology
David McCoy, American Indian Health, Health Care of Rural and Minority Populations, Budgetary and Policy Aspects of the Delivery of Health Care
Margaret Molloy, Prevention, Health Behavior Change, Health Policy
Allison Myers, Tobacco Control, Public Health Policy, Health Equity
Melva Fager Okun, Tobacco Cessation, Nutrition, Physical Activity
Robert Pleasants, Injury Prevention and Control
Cherie Rosemond, Aging, Interdisciplinary Community Engagement
Arjumand Siddiqi, Social Epidemiology, Children's Health and Development, Social Policy and Health
Maihan Vu, Qualitative Research, Adolescent Health, Obesity and Physical Activity

Adjunct Instructors

Margaret (Molly) Cannon, International Health, Diabetes Prevention/Control, Health Care Delivery, Injury Prevention/Control
Denise Dickinson, Intervention Design and Program Management, Home-Based Interventions for Families
Elizabeth French, Patient Advocacy, Professional Development
Bernard Glassman, Emerging Technologies for Health Communication, Communication About Emerging Health Technologies, Writing About Science for Results
Deborah (Debbie) Grammer, Health Promotion, Project Management
Sally Herndon, Health Policy, Tobacco Use Prevention/Control
Alexis Moore, Community-Based and Rural Health Promotion, Lay Health Advisors, Breast and Cervical Cancer
Ingrid Morris, Health Policy, Health Promotion, Obesity Prevention
Carol Patterson, Obesity Prevention, Coping Mechanisms for Chronic Illness, Community Networking in Research Endeavors
Elizabeth Stern, Intimate Partner Violence, Training and Education, Latino Health, Sexual Violence
Karen Strazza, Community-Based Public Health, Community-Based Participatory Research, Minority Health, International Health
Katherine Turner, International Women's Health, Education and Training, Sexual and Reproductive Health Education and Counseling, Cultural Competency (Especially on Lesbian, Gay, Bisexual, and Transgender Health)
Gina Upchurch, Health Policy, Aging, Pharmaceutical Care
Amy Vincus, Global Monitoring and Evaluation, Adolescent Health, Substance Use Prevention, Sexual Violence
Karen Webb, Mental Health, Substance Abuse Prevention, Coalition-Building

Professors Emeriti

Karl Bauman
Brenda DeVellis
Jo Anne L. Earp
John W. Hatch
Ethel J. Jackson
Elizabeth Mutran
Allan Steckler

HBEH

Advanced Undergraduate and Graduate-level Courses

HBEH 561. Environmental and Science Video Storytelling. 3 Credits.
Students work in teams to produce, shoot, script, and report environmental, science, and medical stories for broadcast on "Carolina Week", the award-winning, student-produced television newscast.
Grading status: Letter grade
Same as: MEJO 561, HPM 551.

HBEH 562. Environmental and Science Documentary Television. 3 Credits.
Students work in teams to conceive, produce, and script mini-documenties on environmental and science topics for broadcast on North Carolina Public Television.
Grading status: Letter grade
Same as: MEJO 562, HPM 552.

HBEH 600. Social and Behavioral Sciences in Public Health. 3 Credits.
This course focuses on social and behavioral science theories, research and interventions aimed at promoting health of individuals, groups, communities and populations. Two lecture hours per week. Enrollment is restricted to junior, senior, graduate, and certificate students in programs or majors within the School of Public Health.
Grading status: Letter grade.

HBEH 601. Principles of Statistical Inference for Health Behavior. 3 Credits.
Required preparation, knowledge of basic descriptive statistics. Majors only. Major topics include elementary probability theory, probability distributions, estimation, tests of hypotheses, paired and independent samples t-tests, ANOVA, linear and logistic regression, correlation and chi-squared procedures. SAS, a statistical software package, is used in the course.
Grading status: Letter grade.

HBEH 610. Alternative Spring Break. 2 Credits.
This course will explore issues, theories, and experiences relevant to social action, coalition building, and social change. The content of this course will be examined by confronting the possibilities and limitations of service and service-learning as it relates to APPLES Alternative Spring Break experiences.
Gen Ed: EE- Service Learning.
Grading status: Pass/Fail.

HBEH 611. Philanthropy as a Tool for Social Change. 3 Credits.
In this course students learn about and experience the process of awarding grants to local agencies. In addition to participating in the grant-making process, students learn about the nonprofit sector and the philosophy and practice of philanthropy through readings, class exercises, and guest speakers.
Gen Ed: EE- Service Learning.
Grading status: Letter grade.

HBEH 625. Injury as a Public Health Problem. 3 Credits.
This course examines unintentional injuries from a public health perspective. The course covers core concepts in injury prevention and control, including the epidemiology of unintentional injury, prevention strategies, behavioral models, child and adolescent injury, messaging framing, the Haddon matrix, and injury surveillance.
Requisites: Corequisite, EPID 600.
Grading status: Letter grade
Same as: EPID 625, MHCH 625.

HBEH 626. Violence as a Public Health Problem. 3 Credits.
This course covers core concepts in violence prevention and control, including the epidemiology of violence, prevention strategies for inter-personal and intra-personal violence, behavioral models that describe power structures that reinforce personal and societal factors affecting self-harm and violence towards others, and violence directed towards children and adolescents.
Requisites: Prerequisite, EPID 625.
Grading status: Letter grade
Same as: EPID 626, MHCH 626.

HBEH 660. Environmental and Science Journalism. 3 Credits.
Prepare students to work as environmental and science journalists. The course emphasizes writing skills in all delivery formats and interpreting environmental, science, and medical information for consumers. Honors version available
Grading status: Letter grade
Same as: MEJO 560, HPM 550.

HBEH 660H. Environmental and Science Journalism. 3 Credits.
Prepare students to work as environmental and science journalists. The course emphasizes writing skills in all delivery formats and interpreting environmental, science, and medical information for consumers.
Grading status: Letter grade
Same as: MEJO 560H, HPM 550H.

HBEH 690. Special Topics in Health Behavior. 1-3 Credits.
Special topics in health behavior. An experimental course designed for faculty who wish to offer a new course. Content will vary from semester to semester.
Repeat rules: May be repeated for credit. 6 total credits. 6 total completions.
Grading status: Letter grade.

Graduate-level Courses

HBEH 700. Foundations of Health Equity. 3 Credits.
This is a required course for masters' students in the EQUITY concentration. The course will expose students to the broad context through which public health practitioners and researchers understand and address public health issues in regards to health equity, social justice and human rights. This course will provide students with an overview of the field, as well as an introduction to concepts and topics that are relevant across the MPH curriculum
Grading status: Letter grade.

HBEH 703. Professional Development Part I. 1 Credit.
Topics included in the fall semester focus on knowledge and skills to manage programs. Specific topics include leadership, followership, emotional intelligence, communication, conflict management, negotiation, and participatory decision making. The primary assignment involves a self-assessment and identification of a self-development plan.
Grading status: Letter grade.

HBEH 704. MPH Professional Development Part II. 1 Credit.
The spring semester will focus on knowledge and skills to manage programs with an emphasis on personnel and resources management. Specific topics include: supervision, interviewing, salary negotiation, non-profit management, organizational culture, budgeting, and proposal development. Majors only.
Grading status: Letter grade.

HBEH 705. Lesbian, Gay, Bisexual, and Transgender Health: A Population Perspective. 3 Credits.
This seminar course explores health challenges faced by LGBT populations. Discussions will span a variety of health behaviors and outcomes, determinants of health, developmental stages, identities, and settings. Students will be able to identify conceptual frameworks and considerations relevant in LGBT health research and practice.
Grading status: Letter grade.

HBEH 706. Effective Training for Global Health. 1 Credit.
Students are introduced to adult learning principles, effective training methods, course design and evaluation for international audiences and settings, and characteristics of culturally-competent trainers. Students work in teams to: design a course and activity; facilitate the activity; and provide and incorporate feedback to foster peer sharing and learning.
Grading status: Letter grade.

HBEH 709. U.S. Populations of Color. 3 Credits.
This course explores the various structural forces that impact the health status and health behaviors of populations of color in the United States.
Grading status: Letter grade.

HBEH 710. Community Capacity, Competence, and Power. 3 Credits.
The nature and delineation of participatory action research and its relevance to concepts, principles, and practices of community empowerment. Students learn methods (such as photovoice) through learning projects.
Grading status: Letter grade.

HBEH 715. Communication for Health-Related Decision Making. 2 Credits.
Course provides foundation and skills to understand and improve decision making that affects people's health. It teaches theoretical basis and evidence-based applications of health-related decision making.
Grading status: Letter grade
Same as: PUBH 715.

HBEH 720. Leading for Racial Equity: Examining Structural Issues of Race and Class. 2 Credits.
This multidisciplinary seminar prepares participants from graduate programs and communities to address the challenges of racial, ethnic, and tribal equity. Co-instructors promote applied leadership through: a firm definition and analysis of racism, power, and privilege; historic and current structures that sustain inequities; and anti-racism tools and resources for system change.
Grading status: Letter grade.

HBEH 725. Injury as a Public Health Problem. 3 Credits.
This course considers the causes and consequences of traumatic injury within developmental, social, and economic contexts, and dilemma in injury prevention. Injuries associated with transportation, violence, and the home and occupational environments are included. Three lecture hours per week.
Requisites: Prerequisite, EPID 600.
Grading status: Letter grade
Same as: MHCH 725.

HBEH 726. Adolescent Health. 3 Credits.
Topics covered include the epidemiology of health problems, developmental issues, health services, and psychosocial influences on adolescent problem behaviors. Course materials are useful for research generation and practical application. Three seminar hours per week.
Grading status: Letter grade
Same as: MHCH 726.

HBEH 727. Patient Advocacy. 3 Credits.
Explore competing definitions of patient advocacy. Topics related to ethics, policy, and law will be covered in the context of what have often been termed patient rights and responsibilities. Three lectures hours per week.
Grading status: Letter grade.

HBEH 730. Theoretical Foundations of Health Behavior. 3 Credits.
This course will provide an overview of social and behavioral science theories and frameworks that are currently used to: 1) understand health related behaviors; and 2) guide development of interventions and policies designed to prevent, reduce or eliminate major public health problems. We will use an ecological framework to examine theories at multiple levels of the social ecology, focusing on applications that will impact health at the population level.
Grading status: Letter grade.

HBEH 733. Introduction to Program Management. 3 Credits.
An introductory overview of health education program management. A practical study of personnel and financial management issues including staff development, recruitment, performance appraisal, budget preparation and monitoring. Three lecture hours per week.
Grading status: Letter grade.

HBEH 740. Health Behavior Practice I. 3 Credits.
This is the first part of year-long course covering key principles of health education practice. The coursework will be conducted in modules. HBEH Practice I will cover community engagement/assessment and intervention, development, adaptation, and implementation. The course will draw from the expertise of a wide range of faculty and practitioners.
Grading status: Letter grade.

HBEH 741. Health Behavior Practice II. 3 Credits.
This is the second part of a year-long course covering key principles of health education practice. Coursework will be conducted in modules. HBEH Practice II will cover evaluation, as well as sustainability, dissemination, and translation. The course will draw from the expertise of a wide range of faculty and practitioners.
Grading status: Letter grade.

HBEH 742. MPH Practicum. 1 Credit.
The practicum is an individual field training opportunity that serves as a bridge between a student's academic training and applied public health practice. Majors only.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

HBEH 743. Program Intervention, Implementation, and Monitoring II. 1-4 Credits.
Application of methods to analyze and interpret data regarding the effectiveness of health education interventions. Students work under faculty advisers to assess the effectiveness of interventions implementation in HBEH 742.
Requisites: Prerequisite, HBEH 742.
Grading status: Letter grade.

HBEH 744. Research Practicum for MSPH-to-PhD Students I. 1-2 Credits.
Individually designed and mentored research practicum for enhancing knowledge and skills in research through work on a research project.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

HBEH 745. Research Practicum for MSPH-to-PhD Students II. 1-2 Credits.
Mentored research practicum in writing a publishable manuscript.
Requisites: Prerequisite, HBEH 744.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

HBEH 746. Community-Led Capstone Project. 3 Credits.
Capstone (HBEH 746/992) is a year-long, community-led, group-based, mentored service-learning course that gives students an opportunity to apply HB MPH knowledge and skills to community-identified public health projects in partnership with local organizations. As the culminating experience of the HB MPH program, the products produced for this course serve as a substitute to The Graduate School's master's thesis requirement.
Grading status: Letter grade.

HBEH 750. Quantitative Methods in Health Behavior. 2 Credits.
Permission of the instructor required for non-majors.This course reviews quantitative methods in health behavior research, focusing on validity of conclusions drawn from observational and evaluation studies. The goal is to help public health practitioners be savvy consumers of published research studies and to identify the strengths and weaknesses of planned programs.
Grading status: Letter grade.

HBEH 751. The Role of Evaluation in Health Education. 2 Credits.
Emphasis on methods to show the importance of evaluation in health education program planning and developing skills in formative evaluation design, emphasizing analysis that contributed to decision making regarding programs. Two lecture hours per week.
Grading status: Letter grade.

HBEH 752. Health Behavior Survey Methods. 2 Credits.
This course is a critical examination and application of the concepts and methodologies necessary for effectively selecting, adapting, implementing, and evaluating evidence-based public health interventions.
Grading status: Letter grade.

HBEH 753. Qualitative Methods in Health Behavior. 3 Credits.
Approaches to designing qualitative research studies for the development and evaluation of public health programs. Emphasis is on the practice of collecting and analyzing data from individual interviews, focus group discussions, and observations. All students in the course are required to have completed CITI Human Subjects Training. Information on completing the training can be found at the CITI website: http://www.citiprogram.org/default.asp?language=english.
Requisites: Prerequisite, HBEH 750.
Grading status: Letter grade.

HBEH 754. Advanced Qualitative Research Methods in Health Behavior and Health Research. 3 Credits.
This course provides advanced graduate students in public health and related fields the opportunity to explore different analytic approaches and techniques and develop analysis and writing skills. Students will apply methods they learn to analyze, interpret and write-up the results of their own qualitative research.
Requisites: Prerequisite, HBEH 753.
Grading status: Letter grade.

HBEH 755. Popular and Empowerment Education for Health Educators. 3 Credits.
Explore empowerment education and popular learning methodologies within the context of health education, creating opportunities for dialogue between theory and practice. Examine adult learning theories, participatory learning concepts, and community development techniques. Will also discuss issues of power between practitioners, health educators, and the community.
Grading status: Letter grade.

HBEH 756. Social and Peer Support in Health: An Ecological and Global Perspective. 3 Credits.
Course will survey social support in health, including the nature and key processes of social support, cultural influences in different countries, and approaches to promoting peer support in health promotion around the world. Term assignment will entail planning a peer support program or research project of the student's choice.
Grading status: Letter grade.

HBEH 760. Research Methods with Health Behavior Applications I. 3 Credits.
Permission of the instructor for non-majors. Fundamentals of quantitative research in health behavior, including conceptualization of research questions and hypotheses, sampling, and experimental and observational research designs.
Grading status: Letter grade.

HBEH 761. Generalized Linear Modeling with Health Behavior Applications. 3 Credits.
Permission of the instructor for non-majors. Fundamentals of regression with continuous and categorical outcome data, including techniques to assess mediation. Applications with health behavior data.
Grading status: Letter grade.

HBEH 762. Multilevel Modeling with Applications to Health Behavior. 1-3 Credits.
This course prepares students to analyze nested or longitudinal data using random coefficient models using SAS. Three hours per week.
Requisites: Prerequisite, HBEH 761.
Grading status: Letter grade.

HBEH 763. Scale Development Methods. 3 Credits.
The purpose of this course is to provide students with a foundational theoretical knowledge of psychological assessment and a skills-oriented understanding of common qualitative and quantitative analytical techniques for scale construction. A secondary course objective is to expose students to structural latent variable models and related advanced latent variable modeling techniques relevant to scale development. This course is intended for doctoral students. Previously offered as HBEH 852.
Requisites: Prerequisite, HBEH 750; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

HBEH 765. Cancer Prevention and Control Seminar. 3 Credits.
An interdisciplinary overview of cancer prevention and control. Emphasis on projects and activities from perspectives of epidemiology, health behavior and education, and health policy and management. Appropriate research design and methodologies are covered.
Grading status: Letter grade
Same as: HPM 765, EPID 772.

HBEH 772. Planning, Implementing and Evaluating Health Behavior Interventions. 2 Credits.
This course will critically examine and discuss models and processes to systematically plan and evaluate public health interventions. Students will develop skills in needs assessment, program planning, implementation, and evaluation by reading and discussing literature in the field, working individually and in small groups on in-class activities and outside assignments. This is a graduate level course. Students should have a basic understanding of public health principles, theories/models, quantitative and qualitative research methods, and biostatistics.
Requisites: Prerequisites, SPHG 711, SPHG 712, SPHG 713, HBEH 730, and HBEH 750.
Grading status: Letter grade.

HBEH 775. Introduction to Public Health Policy and The Policy-Making Process. 3 Credits.
This course introduces students to skills they will need to effectively assess and influence a policy process.
Grading status: Letter grade.

HBEH 780. Program Planning for Global Health. 3 Credits.
This course is designed to introduce students to key concepts in global health program planning and proposal development. You will learn how to consider context when designing programs, design programs based on theory and evidence, and consider key operational issues in planning. This is a required course for the Global Health MPH concentration. For those outside of the concentration, permission to enroll will be considered on a case-by-case basis.
Grading status: Letter grade.

HBEH 782. Professional Development for Global Health. 1 Credit.
Professional Development is part of the required training sequence for second year MPH students in the Global Health concentration.
Grading status: Letter grade.

HBEH 785. Critical issues in work, worker and workplace health. 3 Credits.
This course prepares students to contribute as members of an interdisciplinary team to protect and promote workers' health. Students will learn that work is a social determinant of health and explore the context in which worker health protection/promotion practitioners work. Students will be able to summarize key regulations and policies that impact work and worker health.
Grading status: Letter grade
Same as: ENVR 795.

HBEH 786. Essential Methods for Evaluating Worker and Workplace Health. 3 Credits.
Required course for the graduate certificate in Total Worker Health. Students in this course will develop skills for deploying a comprehensive, multi-level assessment of worker and workplace health. Students will draw on the evidence base to articulate a plan for engaging employees in assessments; describe how to conduct individual worker assessments ethically and legally; conduct several types of organizational assessment; summarize administrative data (such as use of sick leave in the worksite) and practice communicating
Requisites: Prerequisite, HBEH 785.
Grading status: Letter grade.

HBEH 787. Planning, Implementing and Evaluating Total Worker Health Interventions. 3 Credits.
Required course for the graduate certificate in Total Worker Health. Students in this course will apply the Comprehensive Planning-Implementation-Evaluation Framework to recommend a Total Worker Health intervention to address the needs of a specific group of workers. They will learn to use multiple data sources to identify a priority worker health/safety issue; identify and/or adapt worker-health interventions from the literature; and write an implementation and evaluation plan for their Total Worker Health intervention.
Requisites: Prerequisites, HBEH 785 and 786.
Grading status: Letter grade.

HBEH 795. E-Health. 3 Credits.
An overview of the positive and negative impacts of the Internet on public health. Covers research, evaluation sites, ethics, and use of theory that addresses key public health problems.
Grading status: Letter grade
Same as: MEJO 795.

HBEH 799. Special Studies in Behavior Change. 1-6 Credits.
Experimental course to be offered by faculty to determine the need and demand for the subject. Topics will be chosen by faculty based on current public health issues.
Grading status: Letter grade.

HBEH 800. Social Psychological Theories of Individual Health Behavior. 3 Credits.
Selected social psychological theories and their relationship to health promotion, disease prevention, and patient education. Three lecture hours per week.
Requisites: Prerequisite, HBEH 730; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

HBEH 802. Social Determinants of Health: Theory, Method, and Intervention. 3 Credits.
Discussion and readings will focus on population vs. individual perspectives on health, risk conditions vs. risk factors, concepts of causation, and knowledge development as a historic and social process. Course will also examine macro-level determinants of population health.
Requisites: Prerequisite, EPID 600.
Grading status: Letter grade
Same as: EPID 825.

HBEH 811. Development and Evaluation of Health Promotion and Disease Prevention Interventions. 3 Credits.
Permission of the instructor for non-majors. Doctoral seminar on application of theory and empirical evidence to intervention development, evaluation paradigms, and methods of process and outcome evaluations.
Grading status: Letter grade
Same as: NUTR 811.

HBEH 812. Professional Development for Doctoral Students I. 2 Credits.
Focus is on professional development competencies needed for doctoral training and career advancement. Emphasis is on topics relevant to students early in training.
Grading status: Letter grade.

HBEH 813. Professional Development for Doctoral Students II. 1 Credit.
Focus is on professional development competencies needed for doctoral training and career advancement. Emphasis is on topics relevant to students nearing the dissertation phase and training completion.
Grading status: Letter grade.

HBEH 815. Foundations of Health Behavior I. 3 Credits.
A critical examination of the conceptual, theoretical, and empirical bases of public health and health education, health transitions, globalization, and issues around social justice. Restricted to doctoral students majoring or minoring in Health Behavior.
Grading status: Letter grade.

HBEH 816. Foundations of Health Behavior II. 3 Credits.
A critical examination of the social determinants of health, health disparities, principles of individual and collective behavior and behavior change, and the role of health behavior in emerging public health issues. Restricted to doctoral students majoring or minoring in Health Behavior.
Grading status: Letter grade.

HBEH 825. Seminar in Interdisciplinary Health Communication. 3 Credits.
Permission required for nonmajors. Interdisciplinary overview of communication theory and research and critical analysis of applications of theory to interventions using communication for health.Three hours per week.
Requisites: Prerequisite, HBEH 730.
Grading status: Letter grade
Same as: MEJO 825.

HBEH 826. Interdisciplinary Health Communication Colloquium. 1.5 Credit.
Open to Interdisciplinary Health Communication graduate certificate and master's track students only. This course is structured for interactive student/faculty discussion on health communication research and practice. Seminar and online blog format.
Repeat rules: May be repeated for credit.
Grading status: Letter grade
Same as: MEJO 826.

HBEH 840. Advanced Field Training in Health Education. 1-3 Credits.
Open to doctoral students in the department. Under guidance by faculty and field counselors, students assume major responsibility for planning, executing, and evaluating community health education projects. Field fee: $125.
Grading status: Letter grade.

HBEH 841. Advanced Field Training. 0.5-21 Credits.

HBEH 842. Primary Practicum for Doctoral Students. 1-4 Credits.
Individually designed and mentored practicum for gaining and strengthening skills in research.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

HBEH 843. Secondary Practicum for Doctoral Students. 1-4 Credits.
Individually designed and mentored practicum for gaining and strengthening skills in teaching, research, or another area relevant to professional goals.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

HBEH 850. Research Manuscript Development. 3 Credits.
This seminar is designed to help advanced students refine conceptual and writing skills essential to the production of a manuscript based on already collected qualitative and quantitative data. Three hours per week.
Requisites: Prerequisite, HBEH 751 or 860.
Grading status: Letter grade.

HBEH 851. Causal Modeling and Structural Equations. 3 Credits.
This seminar is designed to refine a wide range of research skills in health behavior by using data collected by others. Three seminar hours per week.
Requisites: Prerequisite, BIOS 545; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

HBEH 860. Research Proposal Development. 3 Credits.
Restricted to doctoral students in department. Integration and application of detailed components of research methods to preparation and writing of a research grant proposal. Introduction to proposal submission and review process for various funding agencies.
Grading status: Letter grade.

HBEH 861. Global Mental Health. 3 Credits.
Global fundamentals, characteristics, public health impacts, prevention, and management of mental health and mental illness. Master¿s and doctoral students, fellows, and upper-level undergraduates.
Grading status: Letter grade.

HBEH 891. Special Studies in Behavior Change. 1-6 Credits.
An independent course designed for study areas of natural or planned change; personal and nonpersonal methods, in health related fields. To be arranged with faculty in each case.
Grading status: Letter grade.

HBEH 892. Special Topics in Program Design and Evaluation. 1-6 Credits.
Required preparation, to be arranged with the faculty in each case. An independent course of study designed for students who wish to pursue advanced studies in program design and evaluation. Repeatable within degree (for six hours).
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

HBEH 893. Special Studies in Behavior Change. 1-6 Credits.
An independent course of study for students who wish to pursue studies in social class and variations in planned change. To be arranged with faculty in each case. Fall, spring, and summer.
Grading status: Letter grade.

HBEH 897. Advanced Topics in Health Behavior. 1-6 Credits.
For doctoral students who wish to pursue an independent study or research in a selected area. Student will work with a faculty member in designing the study.
Grading status: Letter grade.

HBEH 960. Principles and Practices of Alternative and Complementary Medicine. 3 Credits.
This course is designed to introduce medical students and other health professionals to the underlying philosophies, practitioners, techniques, and evidence of efficacy of alternative therapeutics currently in use in the United States, including chiropractic, dietary, mind-body, acupuncture, homeopathy, and healing.
Grading status: Letter grade.

HBEH 992. Master's (Non-Thesis). 3 Credits.
Capstone is a year-long, group-based, mentored, service-learning course. Over the course of two semesters, each team works with a partner organization and its stakeholders to produce a set of deliverables. Capstone sessions provide opportunities for students to prepare for, reflect upon, cross-share about, and present their Capstone projects. Majors only.

HBEH 994. Doctoral Research and Dissertation. 3 Credits.

Master of Public Health (M.P.H.) Health Behavior Concentration Description

The Health Behavior concentration (https://sph.unc.edu/resource-pages/master-of-public-health-2/health-behavior-concentration) prepares students for leadership positions in public health practice. Through coursework and a year-long service-learning project, students will gain experience using social and behavioral science to develop, implement, and evaluate programs and policies. Graduates of this concentration are equipped to promote health, prevent disease and injury, foster social justice, and reduce health inequities at all levels of the social ecological framework – from the individual to organizations, communities, and policies.

Requirements

Requirements for the **M.P.H.** degree in the **Health Behavior** concentration

Code	Title	Hours
M.P.H. Integrated Core		
SPHG 711	Data Analysis for Public Health Fall 1	2
SPHG 712	Methods and Measures for Public Health Practice Fall 1	2
SPHG 713	Understanding Public Health Issues Fall 1	2
SPHG 721	Conceptualizing Public Health Solutions Spring 1	2

SPHG 722	Developing, Implementing, and Evaluating Public Health Solutions Spring 1	4
M.P.H. Concentration		
HBEH 730	Theoretical Foundations of Health Behavior Fall 1	3
HBEH 750	Quantitative Methods in Health Behavior Fall 1	2
HBEH 752	Health Behavior Survey Methods Spring 1	2
HBEH 753	Qualitative Methods in Health Behavior Spring 1	3
HBEH 772	Planning, Implementing and Evaluating Health Behavior Interventions Fall 2	2
HBEH 746	Community-Led Capstone Project Fall 2	3
M.P.H. Practicum		
SPHG 701	MPH Practicum Preparation Spring 1	2
Practicum: 200 minimum hours Summer 1		
SPHG 702	MPH Practicum Reflection Fall 2	1
M.P.H. Electives		
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
M.P.H. Culminating Experience		
HBEH 992	Master's (Non-Thesis) Spring 2	3
Total Hours		42

Competencies

Students will develop the following **Health Behavior competencies**, building on the foundational public health knowledge they attain in the Gillings M.P.H. Integrated Core courses.

HBEH01.	Identify health behavior and social science theories, integrate constructs across levels of social ecological framework, and apply conceptual models to public health practice.
HBEH02.	Critically evaluate the strengths and weaknesses of quantitative research findings and their relevance to health behavior practice.
HBEH03.	Develop qualitative data collection and analysis skills for health behavior practice.
HBEH04.	Develop, adapt and evaluate health behavior programs and policies and scale them up using implementation science.
HBEH05.	Engage with communities using participatory strategies and principles of effective partnerships to plan, implement, evaluate, and disseminate health behavior programs.
HBEH06.	Identify, adapt, and develop instruments and methods to accurately assess health behavior programs.

Master of Public Health (M.P.H.) Global Health Concentration Description

Our signature philosophy is that there is no difference between global health and public health. Designed to train professionals to solve public health problems locally and globally, the Global Health concentration (https://sph.unc.edu/resource-pages/master-of-public-health-2/global-health-concentration) provides students with the skills to advance the health and well-being of populations in diverse global settings. Students will partner with governmental and non-governmental organizations, research institutions, and the private sector to develop and analyze public health programs that are aligned with local cultures, contexts, and resources.

Requirements

Requirements for the **M.P.H.** degree in the **Global Health** concentration

Code	Title	Hours
M.P.H. Integrated Core		
SPHG 711	Data Analysis for Public Health Fall 1	2
SPHG 712	Methods and Measures for Public Health Practice Fall 1	2
SPHG 713	Understanding Public Health Issues Fall 1	2
SPHG 721	Conceptualizing Public Health Solutions Spring 1	2
SPHG 722	Developing, Implementing, and Evaluating Public Health Solutions Spring 1	4
M.P.H. Concentration		
PUBH 711	Critical Issues in Global Health Fall 1	3
HBEH 780	Program Planning for Global Health Spring 1	3
MHCH 728	Introduction to Implementation Research and Practice in Maternal, Child and Family Health Fall 2	3
HBEH 781	Fall 2	1
MHCH 723	Introduction to Monitoring and Evaluation of Global Health Programs Fall 2	3
HBEH 782	Professional Development for Global Health Spring 2	1
M.P.H. Practicum		
SPHG 701	MPH Practicum Preparation Spring 1	2
Practicum: 200 minimum hours Summer 1		
SPHG 701	MPH Practicum Preparation Fall 2	2
M.P.H. Electives		
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
M.P.H. Culminating Experience		
ENVR 992	Master's Technical Report Spring 2	3
Total Hours		42

Competencies

Students will develop the following **Global Health competencies**, building on the foundational public health knowledge they attain in the Gillings M.P.H. Integrated Core courses.

GLBH01.	Analyze how the roles, relationships, and resources of entities influencing global health policies and practices affect disparities in health outcomes.

GLBH02.	Develop methods to select, recruit, and engage a diverse range of stakeholders to advance research, policy, and practice in global health and to achieve sustainable results in resource-constrained settings.
GLBH03.	Develop skills for monitoring and evaluating the processes and outcomes of global health programs and policies.
GLBH04.	Apply strategies to work effectively in diverse local and global sociocultural and political settings.
GLBH05.	Apply ethical approaches in global health research and practice.

Admissions

Please visit Applying to the Gillings School (https://sph.unc.edu/students/how-to-apply) first for details and information. Application to the residential M.P.H. is a two-step process. Please apply separately to (1) SOPHAS and (2) UNC–Chapel Hill (via the Graduate School application). Visit https://gradschool.sites.unc.edu/master-of-public-health/ for more details. If you are interested in the online M.P.H., please visit the M.P.H.@UNC (https://onlinemph.unc.edu) Web site and fill out an inquiry form.

Practicum

This 200 (minimum) hour planned, mentored, and evaluated work experience (paid or unpaid) gives students the real-world opportunity to integrate and apply knowledge, skills, and values from Year One of their Gillings M.P.H. training in a professional public health setting such as a nonprofit organization, hospital, local or state health department, or for-profit firm (public or private sectors). Please visit the M.P.H. Practicum Web site (https://sph.unc.edu/resource-pages/master-of-public-health-2/mph-practicum) for additional information. In order to meet graduation requirements, a Gillings M.P.H. practicum must:

1. Occur after a student has completed the Gillings M.P.H. Core courses, the M.P.H. practicum preparation course (SPHG 701), and at least one concentration-required course from the student's declared concentration. In extenuating circumstances and with the approval from the student's declared concentration, some exceptions may apply.
2. Yield a least two student-generated products, produced in the practicum setting for the practicum setting, that allow for attainment of at least three (CEPH) M.P.H. Foundational and two concentration-specific competencies (Appendix A). In extenuating circumstances and with the approval from the concentration, students can petition to substitute up to two CEPH Foundational competencies for the concentration-specific competencies.
3. Be mentored by a supervisor (preceptor) with an advanced degree in public health or equivalent experience with expertise in the practicum project area.
4. Comprise a *minimum* of 200 hours (equivalent to five weeks of full-time work) in a location approved for student travel (UNC Travel Policy (https://global.unc.edu/files/2018/02/UNC-Travel-Policy-Final.pdf)), and the student must complete *UNC Gillings International Pre-Departure Travel Requirements* prior to travel.

Culminating Experience

Each student completes a 3-credit culminating experience and produces a high-quality written product that is completed near the end of the program of study. This culminating experience ideally is delivered in a manner that is useful to external stakeholders, such as nonprofit or governmental organizations, and could take the form of a course-based capstone project or master's paper, but will be tailored to the concentration a student chooses.

Academic Advising and Faculty Mentoring

We are committed to providing quality academic advising and mentoring for all students. We ensure that M.P.H. students get the guidance they need with several components: 1) an orientation program that provides an overview of the types and sources of M.P.H. advising; 2) cohort advising sessions to disseminate information that is relevant to course planning and registration; 3) faculty mentoring that provides students with tailored support for their academic, professional, personal development, and practicum support.

M.P.H. students will complete a 2-semester, 12-credit-hour **Integrated Core** taught by an interdisciplinary team of instructors. The 6-credit first semester (fall) focuses on understanding public health issues, and the second semester (6-credit spring courses) focuses on creating solutions to those issues.

All M.P.H. students take **COMPASS (Core Online Modules to Promote and Accelerate Student Success).** These brief, self-paced online modules are open for students prior to their first academic year. Students can complete any and all parts of COMPASS up to and including the first week of class.

Electives: For the remaining 9 credits, students are free to choose elective courses from any of the 12 concentration areas listed above or from other courses in the Gillings School.

For information on policies and procedures, please visit the Gillings School Student Handbook (https://sph.unc.edu/students/gillings-school-student-handbook) Web site.

CAROLINA HEALTH INFORMATICS PROGRAM (GRAD)

Contact Information

Carolina Health Informatics Program
Visit Program Website (http://chip.unc.edu)

The Carolina Health Informatics program is an interdisciplinary program that administers the master of professional science in biomedical and health informatics and the doctor of philosophy in health informatics.

The programs offered by the Carolina Health Informatics Program are:

- M.P.S. in Biomedical and Health Informatics (p. 374) – Residential
- M.P.S. in Biomedical and Health Informatics (p. 374) – Online
- Ph.D. in Health Informatics (p. 374)

Professional Science Master's in Biomedical and Health Informatics

Students must complete the biomedical and health informatics general core and either the clinical informatics track (p. 374) or the public health informatics track (p. 374).

For more information about the professional science master's in biomedical and health informatics, see the Professional Science Master's Program (p. 545).

General Core

Code	Title	Hours
General Informatics Core		
INLS 523	Introduction to Database Concepts and Applications	
INLS 582	Systems Analysis	
6 credit hours from the following list:		6
INLS 541	Information Visualization	
INLS 560	Programming for Information Science	
INLS 572	Web Development I	
INLS 641	Visual Analytics	
INLS 573	Mobile Web Development	
INLS 623	Database Systems II: Intermediate Databases	
INLS 718	User Interface Design	
INLS 760	Web Databases	
Business Skills Courses		
6 credit hours from the following list:		6
GRAD 725	Build Your Professional Brand: Develop Job Search Skills and Materials to Make Employers Notice You	
GRAD 710	Professional Communication: Writing	
GRAD 711	Professional Communication: Presenting	
GRAD 712	Leadership in the Workplace	
GRAD 713	Applied Project Management: Frameworks, Principles and Techniques	
GRAD 714	Introduction to Financial Accounting	
GRAD 715	Building Your Leadership Practice	
Biomedical and Health Informatics Core		
HPM 600	Introduction to Health Policy and Management	
INLS 725	Electronic Health Records	
Clinical Informatics track or Public Health Informatics track		11
Total Hours		23

Clinical Informatics

These courses are required in addition to the Biomedical and Health Informatics core for the Clinical Informatics Track.

Code	Title	Hours
Biomedical and Health Informatics General Core		24
Clinical Inofrmatics Track Core		
NURS 870	Health Care Informatics	
INLS 770	Health Informatics Seminar	
Clinical Informatics Track Elective		3
3 credit hours from the following list:		
INLS 515	Consumer Health Information	
NURS 874	Improving Quality, Safety, and Outcomes in Healthcare Systems	
Clinical Informatics Internship		
GRAD 989	Professional Science Master's Internship/ Practicum	
Total Hours		27

Public Health Informatics

These courses are required in addition to the Biomedical and Health Informatics core for the Public Health Informatics tack.

Code	Title	Hours
Biomedical and Health Informatics Core		24
Public Health Informatics Core		
EPID 795	Data in Public Health	
INLS 770	Health Informatics Seminar	
HPM 620	Implementing Health Informatics Initiatives	
3 hours of elective coursework from the following list:		3
EPID 766	Epidemiologic Research with Healthcare Databases	
EPID 750	Fundamentals of Public Health Surveillance	
HPM 760	Healthcare Quality and Information Management	
ENVR 468	Temporal GIS and Space/Time Geostatistics for the Environment and Public Health	
BIOS 669	Working with Data in a Public Health Research Setting	
BIOS 511	Introduction to Statistical Computing and Data Management	
Public Health Informatics Internship		
GRAD 989	Professional Science Master's Internship/ Practicum	
Total Hours		27

Ph.D. in Biomedical and Health Informatics

The Carolina Health Informatics Program offers a Ph.D. in biomedical and health informatics. The interdisciplinary program allows students

to focus on the areas of study which they feel will best prepare them to become leaders in the field of biomedical and health informatics. All graduates of the Ph.D. program are exposed to data management, analytics and visualization principles as well as research methods, project management and leadership skills. Graduates will be prepared to become researchers in academic or industry settings. They will also be prepared for leadership roles in public and private health care organizations or government agencies.

The Ph.D. program requires a minimum of 55 credit hours across the five pillars of the curriculum; designed to be completed in 4-5 years.

DEPARTMENT OF HEALTH POLICY AND MANAGEMENT (GRAD)

Contact Information

Department of Health Policy and Management
Visit Program Website (http://sph.unc.edu/hpm/health-policy-and-management-home)

Morris Weinberger, Chair
mweinber@email.unc.edu

Rebecca Slifkin, Associate Chair
becky_slifkin@unc.edu

Kristin Reiter, Associate Chair
reiter@email.unc.edu

Lynnette Jones, Student Services Manager/Registrar
lynnette_jones@unce.du

The Gillings School's top-ranked Department of Health Policy and Management trains the next generation of leaders in management, policy making, and research to address the complex challenges of health care delivery and produce cutting-edge research. We prepare our students to improve population health both domestically and globally. We are committed to ensuring that all people — irrespective of age, gender, race, ethnicity, disability, sexual orientation, geographic origin, religion, or economic resources — have access to high-quality health care services.

Mission

To improve health for all by creating and translating knowledge into policy and practice and educating current and future health leaders, managers, policymakers, practitioners, and researchers.

Vision

High quality, accessible and affordable health systems that achieve optimal population health in North Carolina, across the United States, and around the world.

Our research strengths include:

- Cancer care
- Rural health
- Mental health
- Comparative effectiveness
- Financial management and performance
- Health outcomes
- Organization and implementation science
- Quality of and access to care

The Department of Health Policy and Management (https://sph.unc.edu/hpm/hpm-degrees-and-certificates) offers two master's degrees, two doctoral degrees, and one graduate-level certificate program.

Master of Healthcare Administration (M.H.A.)

The M.H.A. is a professional degree for individuals wishing to pursue management careers in health systems, hospitals, consulting firms, managed care organizations, insurance companies, medical group practices, government agencies, or other healthcare settings. The M.H.A. degree provides strong preparation in the management disciplines, a comprehensive understanding of the health care sector, and professional development. Students are encouraged to take elective courses in particular areas of interest.

Master of Science in Public Health (M.S.P.H.)

The M.S.P.H. is a professional degree that prepares individuals for careers in health policy analysis, health services research, program planning, program evaluation and advocacy at local, state, federal, and international levels. Graduates work in both public and private sector organizations. Students obtain a comprehensive understanding of the health care system and receive in-depth training in health policy analysis, health services research methods, evaluation, and professional development. Students are encouraged to take elective courses in particular areas of interest.

The Executive Master's Program (Distance Education)

The Department of Health Policy and Management provides graduate-level education to employed public health professionals and health care administrators, offering the M.H.A. degrees through its executive master's program. This nationally ranked program provides master's degree study to full-time health professionals throughout the United States and beyond. The two-year program consists of six brief, but intensive, sessions on the Chapel Hill campus, faculty-guided, Internet-based distance learning using real-time conferencing, and applied leadership integrative simulations to test concepts learned. The M.H.A. program is CAHME accredited.

Doctor of Philosophy (Ph.D.)

The Ph.D. program in health policy and management is designed to provide students with the research experience, academic foundation, and competencies to become independent and creative health services/health policy researchers. All students take required courses in health services research, research design, quantitative methods, qualitative and mixed methods, and health policy. In addition, students develop expertise in a minor area, including decision sciences and outcomes research, economics, financial management, health politics and policy, quality and access, and organization and implementation science. Students must pass written comprehensive examinations after completing coursework, then present and defend a dissertation proposal and the final dissertation based on original research. The Ph.D. program is designed to be completed in four years.

Doctoral Program in Health Leadership (Dr.P.H.)

UNC–Chapel Hill's doctoral program in health policy and management prepares mid-to-senior-career professionals for greater leadership positions in organizations working domestically and internationally to improve the public's health. The three-year, cohort-based distance

program targets individuals working full time with substantial leadership responsibilities in communities, organizations, and institutions. Students must have a master's or a doctoral degree before matriculating into the Dr.P.H. With the exception of three short visits to Chapel Hill (or an alternate site outside North Carolina or overseas) in each of the first two years, learning takes place in participants' homes and offices, away from the UNC–Chapel Hill campus. Students connect to the faculty and their peers mainly via computer, making substantial use of technology that allows students and faculty members to share data and interact productively via live video and audio. The distance format allows working professionals to complete doctoral leadership training while continuing full-time employment, remaining in their home location throughout the duration of their education.

Certificate Program in Community Preparedness and Disaster Management

The professional certificate program in community preparedness and disaster management is designed to provide students, as well as community leaders in emergency services (fire, law enforcement, EMS, 911 communications), public health, emergency management, health services, veterinary services, and all who prepare for and respond to disasters, with the opportunity to enhance their knowledge of disaster management systems used to combat natural and man-made disasters, including terrorism. The certificate consists of three courses (nine credit hours) that are all completed online. The courses can be used for undergraduate and graduate degree programs. The certificate is open to residential students as well, who may take just one course, or opt for all three courses to complete the certificate.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Ethan Basch
Peggye Dilworth-Anderson (308)
Marisa E. Domino (279), Health Economics
George Mark Holmes
Jessica Lee (312), Access to Care for Children, Evidence-Based Practice of Dentistry
Jonathan Oberlander
George Pink (309), Integrated Health Care, Health Services Accounting and Finance, Financial Performance Measurement, Executive Compensation, Nursing Cost Analyses
Kristin Reiter
Sally Stearns (150), Health Economics, Health Policy
Morris Weinberger (300), Quality Management, Health Outcomes Research, Health Services Research

Professors of the Practice

Leah Devlin
Sandra Greene
Pam Silberman (249), Public Health Legal Issues

Associate Professors

Bruce J. Fried (172), Human Resources Management in Health Care, Mental Health Services Research, Health Services Management and Education, Canadian Health Systems
Valerie Lewis
Kristen Hassmiller Lich
Chris Shea
Paula Song
Justin Trogdon
Stephanie Wheeler
Benjamin White

Assistant Professors

Leah Frerichs
Byron Powell
Cleo Samuel
Sean Sylvia

Teaching Assistant Professor

Alyssa Damon
William B. Gentry (321)
Susan Helm-Murtagh
Jeffrey Simms
Steve Sloate
Margaret Thomas
Karl E. Umble
J. Bennett Waters (334)

Teaching Professor

Rebecca Slifkin

Teaching Associate Professor

Dean M. Harris (195), Health Law and Ethics for Health Administration

Research Professor

Sheila Leatherman (286), Quality of Care, Health Systems Performance, International Health Policy

Research Associate Professors

Antonia Bennett

Research Assistant Professors

Sarah Birken
Angela Stover

Adjunct Professors

Amy Albernethy
Stuart Altman
William K. Atkinson II (255), Health Care Administration
Suzanne Babich
Edward Baker
David Ballard
Deborah Bender
Hayden B. Bosworth
Fred T. Brown Jr. (282), Managed Care Networks
Young Moon Chae
Samuel Cykert
Edward Dauer
Steven Garfinkel
Robert Greczyn
Emery Wayne Holden
Donald A. Holzworth
Samuel Jackson
Joan Krause

Jennifer Lafata
Kathleen Lohr
Matthew Maciejewski
Barbara Mark (318)
Gene Mathews
Noel Mazade
Carmen Odom
John O'Donnell
Krista Perreira
Joe Piedmont
Janet E. Porter
Bryce Reeve
Daniel Reuland
Thomas C. Ricketts (139), Rural Health Care, Primary Care, Regionalization of Services, Political Philosophy, Policy Implementation and Policy Development
Jeffrey Runge
Richard Saver
Betsy Sleath (254), Pharmacy Administration
Kevin Sowers
Jeffrey Swanson
Judith Tintinalli (323)
Wendee Wechsberg (291), Clinical Addiction and Drug Treatment, HIV Projects
Jane Weintraub
Rebecca Wells
Bryan Weiner
Aaron Williams

Adjunct Associate Professors

Andrea K. Biddle (175), Health Care Access and Reform, Childhood Vaccination, Pharmaceutical Economics
William Carpenter
Dorothy Cilenti
J. Steven Cline
Megan Davies
Travis Day
Spencer Dorn
Nancy Henley
Fredrick Homan
George Jackson
Melissa Kaluzny (331)
Jennifer Leeman
Michael Markowitz
Lauren McCormack
Lori McLeod
Julie Sakowski
Lucy Savitz
Richard P. Scoville (272), Management Information Systems in Health Care
Asheley Skinner
Stanley Taylor
Harsha Thirumurthy
Leah Zullig

Adjunct Assistant Professors

Heather Altman
Oscar Aylor (268)
Nicole Bates
Chris Beadles
Paul Bednar
Diane Bloom
Lisa Bourget
Colleen Bridger
Thomas Caffey
Timothy Carney
Carolyn Carpenter (329)
Daniel Carter
Rachel Caspar
Michaela Dinan
Shellie Ellis
Jeff Federspiel
Erin Fraher
Laura Gerald
Benjamin Gilbert
Susan L. Hogue (290), Health Outcomes Research
Dionysios Kavalieratos
Lisa Koonin
Lara Lorenzetti
Lukasz Mazur
Aimee McHale
Aaron McKethan
Felicia Mebane
Benjamin Meier
Larry Melton
Kathleen Miller
Matthew Nielson
Jean Orelien
Stephen Orton
Michael Park
Eugene Pinder
Stephanie Poley
Jim Porto
David D. Potenziani (298), Management Information Systems in Health Care
Andrea Radford
Adam Searing
Thomas Stanley
Daniel Stevens
Scott Stewart
Karen Stitzenberg
Michael Stobbe
Kathleen Thomas
Laurel Trantham
Gary R. West
John Wiesman

Adjunct Instructors

Edwin Alcorn
Dawn Carter (281), Strategic Planning and Marketing
J. Mike Collins
Randall J. Egseqian
Franklin Farmer
Eric Griffin
Amy Ising
Lawrence K. Mandelkehr (244), Database Design for Health Care
Donald R. Markle
Ervin Maynard
Anne McGeorge
Michael Patterson
Robert Patterson
Patricia M. Pozella

Marjorie Satinsky
Frederick Sexton
Jeffery Strickler
Eric Wolak
Cameron Wolfe

Lecturers

Jay Levy
Sanford D. West

Professors Emeriti

Edward Brooks
Laurel Files
Sagar Jain
Arnold Kaluzny
Kerry Kilpatrick
Peggy Leatt
Joe Morrissey
William N. Zelman

HPM

Advanced Undergraduate and Graduate-level Courses

HPM 420. Community and Public Health Security: Disasters, Terrorism, and Emergency Management. 3 Credits.
This course examines systems for emergency management at federal, state, and local levels. The roles of emergency management, health services, and public health in disaster management are also reviewed. Every other week, evening online sessions required with instructors.
Grading status: Letter grade.

HPM 422. Emergency Management I: Analytic Methods. 3 Credits.
Introduction of analytical tools to assess, evaluate, map, and investigate disasters (including biological outbreaks). These tools will be used to improve planning and evaluation of disaster management programs. Every other week, evening online sessions required with instructors.
Grading status: Letter grade.

HPM 423. Emergency Management II: Disaster Management. 3 Credits.
Explores issues of preparedness, response, recovery, mitigation, and research in disaster management. Students will participate in evacuation decision making, volunteer management, and the development of a disaster exercise. Every other week, evening online sessions required with instructors.
Grading status: Letter grade.

HPM 435. Marketing for Not-for-Profit Organizations. 3 Credits.
Permission of the instructor. Application of basic principles of marketing and marketing decision models to problems in health care and other not-for-profit organizations.
Grading status: Letter grade.

HPM 472. Program Evaluation. 3 Credits.
Concepts and methods of the program evaluation paradigm as applied in health administration.
Grading status: Letter grade.

HPM 496. Readings in Health Policy and Management. 0.5-3 Credits.
Directed readings or research. Written reports are required.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

HPM 550. Environmental and Science Journalism. 3 Credits.
Prepare students to work as environmental and science journalists. The course emphasizes writing skills in all delivery formats and interpreting environmental, science, and medical information for consumers. Honors version available
Grading status: Letter grade
Same as: MEJO 560, HBEH 660.

HPM 550H. Environmental and Science Journalism. 3 Credits.
Prepare students to work as environmental and science journalists. The course emphasizes writing skills in all delivery formats and interpreting environmental, science, and medical information for consumers.
Grading status: Letter grade
Same as: MEJO 560H, HBEH 660H.

HPM 551. Environmental and Science Video Storytelling. 3 Credits.
Students work in teams to produce, shoot, script, and report environmental, science, and medical stories for broadcast on "Carolina Week", the award-winning, student-produced television newscast.
Grading status: Letter grade
Same as: MEJO 561, HBEH 561.

HPM 552. Environmental and Science Documentary Television. 3 Credits.
Students work in teams to conceive, produce, and script mini-documenties on environmental and science topics for broadcast on North Carolina Public Television.
Grading status: Letter grade
Same as: MEJO 562, HBEH 562.

HPM 560. Media and Health Policy. 3 Credits.
Introduces students to news media organizations and their role in health policy development. Students will learn how to evaluate media content and strategies and to effectively communicate via mass media.
Grading status: Letter grade.

HPM 563. Advanced Health Policy Analysis. 3 Credits.
The course is for master's and doctoral students interested in health policy. The course is intended to go beyond an introduction to policy analysis to a discussion and exploration of theories of policy analysis in a context of competing democratic ethics and values.
Grading status: Letter grade.

HPM 565. Global Health Policy. 3 Credits.
Coursework will focus on public policy approaches to global health, employing interdisciplinary methodologies to understand selected public health policies, programs, and interventions. For students who have a basic understanding of public health.
Gen Ed: GL.
Grading status: Letter grade
Same as: PLCY 565.

HPM 571. Health and Human Rights. 3 Credits.
Course focuses on rights-based approaches to health, applying a human rights perspective to selected public health policies, programs, and interventions. Students will apply a formalistic human rights framework to critical public health issues, exploring human rights as both a safeguard against harm and a catalyst for health promotion.
Gen Ed: PH, GL.
Grading status: Letter grade
Same as: PLCY 570.

HPM 600. Introduction to Health Policy and Management. 3 Credits.
This course provides an overview of the United States health care system. Students will explore the system's organization, financing, management, resources, and performance. For each topic, they will analyze relevant legislation and discuss current issues. Students will develop skills in policy research and analysis, health care system evaluation, and basic financial literacy.
Grading status: Letter grade.

HPM 601. Issues in Health Care. 1 Credit.
Lectures on current topics in health care.
Grading status: Letter grade.

HPM 602. Concurrent Practice. 1-3 Credits.
Permission of the program director. Supervised activities in an approved health organization, to include one or more specific projects, approved by HPM faculty member and directed by an approved preceptor/mentor in the organization.
Grading status: Letter grade.

HPM 605. Practice Application Journaling I. 0.5 Credits.
This course is the first of six field-based Journal Practica in which students monitor their learning processes, identify where knowledge and skills learned in courses are helpful and relevant to areas of their professional responsibility, and apply that knowledge and those skills to actual work situations.
Repeat rules: May be repeated for credit. 1 total credits. 2 total completions.
Grading status: Letter grade.

HPM 606. Practice Application Journaling II. 0.5 Credits.
This course is the second of six field-based journal practica in which students monitor their learning processes, identify where knowledge and skills learned in courses are helpful and relevant to areas of their professional responsibility, and apply that knowledge and those skills to actual work situations.
Requisites: Prerequisite, HPM 605.
Repeat rules: May be repeated for credit. 1 total credits. 2 total completions.
Grading status: Letter grade.

HPM 607. Practice Application Journaling III. 0.5 Credits.
This course is the third of six field-based journal practica in which students monitor their learning processes, identify where knowledge and skills learned in courses are helpful and relevant to areas of their professional responsibility, and apply that knowledge and those skills to actual work situations.
Repeat rules: May be repeated for credit. 1 total credits. 2 total completions.
Grading status: Letter grade.

HPM 608. Practice Application Journaling IV. 0.5 Credits.
This course is the fourth of six field-based journal practica in which students monitor their learning processes, identify where knowledge and skills learned in courses are helpful and relevant to areas of their professional responsibility, and apply that knowledge and those skills to actual work situations.
Repeat rules: May be repeated for credit. 1 total credits. 2 total completions.
Grading status: Letter grade.

HPM 609. Practice Application Journaling V. 0.5 Credits.
This course is the fifth of six field-based journal practica in which students monitor their learning processes, identify where knowledge and skills learned in courses are helpful and relevant to areas of their professional responsibility, and apply that knowledge and those skills to actual work situations.
Repeat rules: May be repeated for credit. 1 total credits. 2 total completions.
Grading status: Letter grade.

HPM 610. Practice Application Journaling VI. 0.5 Credits.
This course is the sixth and final of six field-based journal practica in which students monitor their learning processes, identify where knowledge and skills learned in courses are helpful and relevant to areas of their professional responsibility, and apply that knowledge and those skills to actual work situations.
Repeat rules: May be repeated for credit. 1 total credits. 2 total completions.
Grading status: Letter grade.

HPM 611. Public Health Concepts in a Systems Context. 3 Credits.
This course develops systems reasoning in health policy and management students through the application of systems techniques and systems thinking to core public health concepts in health policy and management, environmental health, epidemiology, and health behavior and health education.
Grading status: Letter grade.

HPM 620. Implementing Health Informatics Initiatives. 3 Credits.
Focuses on implementing informatics programs and projects in health organizations. Informatics initiatives aim to facilitate effective information use for the purpose of improving the quality of health services and/or efficiency of processes. Therefore, these initiatives have implications for various stakeholder groups, including consumers, practitioners, administrators, and policy makers.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

HPM 630. IHI Course in Healthcare Quality Improvement. 1.5 Credit.
The IHI Certificate demonstrates an investment in further education and a strong knowledge base in quality improvement. Upon completion of this course, students will have met the requirements for the IHI Open School Certificate and participated in two in-person sessions.
Grading status: Letter grade.

HPM 634. Public Health Issues in Community Preparedness and Disaster Management. 3 Credits.
Examines conventional public health constructs of community preparedness and disaster management. Includes a review of traditional and emerging literature. Emphasizes conceptual development and application of adaptive leadership strategies.
Grading status: Letter grade
Same as: PWAD 634.

HPM 640. LEAN/Six Sigma I for Health Policy and Management. 1 Credit.
This course is an introduction to Lean Six-Sigma. Students will be exposed to continuous quality improvement (CQI) methods based on Toyota Production System (TPS or Lean) and Six-Sigma philosophy, methods, and tools.
Grading status: Letter grade.

HPM 641. LEAN/Six Sigma II for Health Policy and Management. 1 Credit.
This project-based course explores the phases of Six-Sigma approach to continuous quality improvement: define, measure, analyze, improve, and control (DMAIC). The overall objective of this course is to help students understand the challenges and pitfalls involved in completing a DMAIC project to drive change at organizational, unit, and individual levels.
Requisites: Prerequisite, HPM 640.
Grading status: Letter grade.

HPM 660. International and Comparative Health Systems. 3 Credits.
Methods of comparing health systems, examinations of related national health systems, and analysis of related high prevalence health issues.
Grading status: Letter grade.

HPM 664. Globalization and Health. 3 Credits.
Globalization--its economic, environmental, political, technological, institutional, and sociocultural dimensions--historically and currently contributes to beneficial and adverse effects on population, community, and family and individual health.
Grading status: Letter grade
Same as: MHCH 664.

HPM 671. Statistical Methods for Health Policy and Management. 3 Credits.
Introduction to statistical analysis for healthcare settings using an Excel framework. Topics include variable types, sampling, probability distributions, descriptive statistics, hypothesis testing, categorical data analysis, ANOVA, and introduction to regression methods. Previously offered as HPM 470.
Grading status: Letter grade.

HPM 690. Special Topics in Health Policy and Management. 0.5-3 Credits.
Special topics course for health policy and management undergraduate students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 2 total completions.
Grading status: Letter grade.

HPM 691H. Honors Research. 3 Credits.
Required preparation, approved cumulative grade point average by the end of the junior year. Readings and seminars for undergraduates showing potential and talent for research. Students will design an independent research project, write a proposal, and complete an IRB application toward partial completion of an honors thesis.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

HPM 692H. Independent Honors Research. 3 Credits.
Permission of the instructor. Students collect data, analyze and report findings, and make recommendations to complete an honor thesis and present findings in presentation/poster format.
Requisites: Prerequisite, HPM 691H.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

HPM 697. B.S.P.H. Capstone. 3 Credits.
The capstone course is an "integrative exercise" for B.S.P.H. students prior to graduation. It is intended to simulate the integration of various disciplines--finance, human resources, ethics, policy, operations, and information technology--into a comprehensive and practical framework. Students work with healthcare organizations to solve financial or operational problems.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

Graduate-level Courses

HPM 701. Professional Training I. 1 Credit.
Restricted to HPM majors. Supervised professional training (fee is $550).
Grading status: Letter grade.

HPM 702. Professional Training II. 1 Credit.
Restricted to HPM majors. Supervised professional training (fee is $500).
Grading status: Letter grade.

HPM 703. Professional Training III. 1-15 Credits.
Restricted to HPM majors. Supervised professional training (fee is $500).
Grading status: Letter grade.

HPM 705. Healthcare Management Skills Development Workshop I. 0.5 Credits.
This course is the first of two workshops for students in the Executive Master's Program. These workshops are designed to provide students exposure to key cross cutting skills that will be used in the program. These skills also are essential for effective healthcare management.
Grading status: Letter grade.

HPM 706. Healthcare Management Skills Development Workshop II. 0.5 Credits.
This course is the second of two workshops for students in the Executive Master's Program. These workshops are designed to provide students exposure to key cross cutting skills that will be used in the program. These skills also are essential for effective healthcare management.
Requisites: Prerequisite, HPM 705.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

HPM 710. Health Law. 3 Credits.
An introduction to law and the legal system as it relates to the delivery and financing of health care.
Grading status: Letter grade.

HPM 711. Research Management and Ethics in Health Policy. 1 Credit.
This course is aimed at doctoral and M.S.P.H. students with interests in research management and ethics. Using cases and examples, the first part of the course focuses on major management and leadership issues, while the second part deals with ethically relevant matters.
Grading status: Letter grade.

HPM 712. Leadership and Ethics. 2 Credits.
This course is based on the notions that leadership and ethics are intertwined and that good leaders behave ethically. There is often no one right way to lead effectively. Also, there are few firm rules or principles that guide ethical decision making, and there is much room for debate.
Grading status: Letter grade.

HPM 713. Hospital Functions and Operations. 2 Credits.
This course provides exposure to the knowledge and skills required to solve the most pressing operational problems found across departments within today's complex health care institutions.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 714. Advanced Spreadsheet Modeling for Business. 3 Credits.
This course focuses on using advanced features of Microsoft Excel to create efficient spreadsheet models of common and complex business problems. It challenges students to use critical thinking and analysis to find effective solutions to real-life situations.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 715. Health Economics for Policy and Management. 3 Credits.
Permission of the instructor for nonmajors. Provides training in the theory of health economics and applies this theory to important issues in health policy and management.
Requisites: Prerequisite, BIOS 600.
Grading status: Letter grade.

HPM 715L. Microeconomics Lab. 1 Credit.
Permission of the instructor for nonmajors. Applications of health economics theory to current health care policy.
Requisites: Corequisite, HPM 715.
Grading status: Letter grade.

HPM 716. Applied Quality Improvement Methods for Healthcare and Public Health. 3 Credits.
The course objective is to develop, implement, and test a solution to improve health care or public health delivery, using a model called the Model for Improvement (or MFI). The model uses three questions to scope the improvement project and four steps, Plan-Do-Check-Act, to implement and test solutions.
Grading status: Letter grade
Same as: PUBH 716, MHCH 816.

HPM 717. Gillings Global Implementation Lab. 2 Credits.
Interdisciplinary, field-based graduate course for teams of students to apply knowledge and experience to design/implement systematic solutions to improve the delivery of public health services in partnership with organizations around the world. Students develop general insights, learn effective implementation practices, and acquire evidence-based applied experience.
Requisites: Corequisite, PUBH 716.
Grading status: Letter grade
Same as: PUBH 717, MHCH 817.

HPM 718. Mental Health Services Research and Policy. 3 Credits.
This course is an introduction to mental health services research and policy. Topics include the financing of mental health services, supply of services, quality measures, assessing need, and barriers to care. The course includes seminar presentations by local and nationally recognized experts in mental health services research and discussion sessions.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

HPM 719. Introduction to Implementation Research and Practice in Public Health. 3 Credits.
This course introduces the concepts, frameworks, and methods of implementation research and practice. By the end of this course, students will be able to explain the rationale for this field, identify guiding frameworks, assess multilevel barriers and facilitators, and address barriers and facilitators with implementation strategies tailored to specific contexts
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 99 total completions.
Grading status: Letter grade
Same as: PUBH 719.

HPM 720. Management of Human Resources in Health Organizations. 3 Credits.
Emphasis is on clarifying concepts of human resources management and identifying the importance of human resources in health organizations.
Requisites: Prerequisite, HPM 730; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

HPM 725. Health Care Strategy and Marketing. 3 Credits.
This course introduces students to strategic planning and marketing in health services organizations. Students develop practical skills such as assessing the internal and external environment, competitor analysis, and evaluating strategic alternatives in different health care settings. It also explores the role the governing board plays in strategy development and management.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 726. Health Care Strategy and Marketing. 4 Credits.
This course introduces students to strategic planning and marketing in health services organizations. Students develop practical skills such as assessing the internal and external environment, competitor analysis, and evaluating strategic alternatives in different health care settings. It also explores the role the governing board plays in strategy development and management.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 728. Leadership and Workforce Management Strategies. 4 Credits.
This course provides an introduction and overview to leadership, management, human resources and organizational behavior, with the goal of aligning these with the organization's strategy and mission. The course integrates theory with practice through readings, lectures, written assignments, and guest presentations from different organizational perspectives. Assessment, practice and development of leadership, managerial and organizational skills will be accomplished through team exercises and small group work.
Grading status: Letter grade.

HPM 730. Leadership and Workforce Management Strategies. 3 Credits.
This course provides an introduction and overview of leadership, management, workforce challenges, and organizational behavior. The course emphasizes the importance of aligning management practices with the organization's mission and goals. The course integrates theory with practice through readings, lectures, written assignments, experiential exercises, and guest presentations. Assessment, practice and development of leadership, managerial and organizational skills are accomplished through team exercises, self and peer assessments, and small group work.
Grading status: Letter grade.

HPM 734. Approaches to Business Plan Development. 1 Credit.
Approaches to Business Plan Development ('Capstone Prep') is a one-credit course to introduce and jumpstart the Spring Semester Capstone business plan process necessary for HPM 735.
Grading status: Letter grade.

HPM 735. Advanced Concepts and Applications in Health Policy and Management. 3 Credits.
Required preparation, completion of master's core (can be concurrent). Restricted to HPM graduate students. Integrating and building upon the HPM master's core, this comprehensive course focuses on organization policymaking and administration from the perspective of the CEO and top management.
Requisites: Prerequisite, HPM 734.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 738. Health Operations Management. 3 Credits.
Operations management (OM) involves the day-to-day management of an organization, by focusing on the analysis, design, planning and control of work processes in order to create value for clients. All organizations must manage their work processes, however surprisingly many do not have a systematic or rigorous approach to managing them.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

HPM 740. Health Care Financial Accounting. 2 Credits.
This introduces concepts of financial accounting to the non-accountant user of financial information. Basic accounting transactions, financial report preparation, concepts of accrual vs. cash accounting, not-for-profit health care accounting, and the analysis of health care organization financial reports.
Grading status: Letter grade.

HPM 741. Management Accounting for Health Administrators. 3 Credits.
Permission of the instructor for non-MHA majors. Covers selected topics in managerial accounting applied to health care.
Requisites: Prerequisite, HPM 740; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

HPM 742. Health Care Finance I. 3 Credits.
This course focuses on financial management, analysis and decision-making and the use of spreadsheets to help make better financial decisions. The course includes the healthcare environment, basic financial management concepts, capital acquisition, and cost of capital, capital structure, and capital budgeting.
Requisites: Prerequisites, HPM 740 and HPM 741.
Grading status: Letter grade.

HPM 743. Health Care Reimbursement. 1 Credit.
This online course in health care reimbursement is designed to provide students with relevant and current information about health care reimbursement methods and the complexities around it. After completion of the course, students should have an operational knowledge of health care reimbursement theory and practice.
Grading status: Letter grade.

HPM 744. Health Care Finance II. 2 Credits.
Focuses on capital allocation, financial condition analysis and forecasting, and other topics. Course is the conclusion to a five-course sequence in healthcare financial management. Each builds on the prior course with the intent of providing a comprehensive foundation in the concepts and practice of healthcare financial management.
Requisites: Prerequisites, HPM 740, 741, 742.
Grading status: Letter grade.

HPM 745. Financial Management and Analysis for Public and Nonprofit Entities. 3 Credits.
This course teaches financial concepts for students seeking leadership roles in the non-profit and government sector, including business planning, budgeting, accounting, performance management, and resource blending and braiding. Students will develop a business plan and learn key strategy and evaluation tools.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

HPM 746. Introduction to Financial and Managerial Accounting for Healthcare Organizations. 4 Credits.
Focuses on learning and applying key financial and managerial accounting tools and concepts to healthcare problems. Provides a broad introduction to key concepts, issues, tools, and vocabulary useful for policymakers and administrators. Topics include: reading and analyzing healthcare financial statements, recording transactions, budgeting, full costing, incremental costing, and responsibility accounting.
Repeat rules: May be repeated for credit. 8 total credits. 2 total completions.
Grading status: Letter grade.

HPM 747. Health Care Finance. 4 Credits.
The course focuses on financial management and analysis. The course includes the healthcare environment, basic financial management concepts, capital acquisition, cost of capital and capital structure, and capital allocation. After completion of the course, students should be able to apply financial management concepts in real world healthcare settings.
Requisites: Prerequisite, HPM 746.
Grading status: Letter grade.

HPM 748. Economic Principles, Health Insurance & Behavioral Economics in Health. 3 Credits.
This course provides students with an opportunity to investigate topics of healthcare policy and insurance from a finance and economics perspective. The course covers contemporary health policy topics in great depth and with a focus on economic and financial analysis as a tool to evaluate healthcare policies and proposed new legislation.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

HPM 750. Introduction to Dental Public Health. 3 Credits.
Permission of the instructor. Survey of the theory and practice of dental public health, with an emphasis on basic knowledge and skills necessary for planning and evaluating dental public health programs.
Grading status: Letter grade.

HPM 751. Dental Public Health Practice. 3 Credits.
Permission of the instructor. Emphasis on knowledge of community measures for prevention and control of oral diseases, understanding the scientific basis for their use, and designing and evaluating prevention programs for a specific population.
Grading status: Letter grade.

HPM 752. Oral Epidemiology for Health Policy and Management. 3 Credits.
Focuses on the epidemiology of oral diseases and the implications and uses of this knowledge for dental health policymaking and administration of dental programs.
Requisites: Prerequisite, EPID 600 or HPM 750; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

HPM 753. Health Care in the United States: Structure and Policy. 4 Credits.
This core course is designed to provide students with an overview of the structure, systems, and policies of health care delivery in the United States. The goal is to increase students' knowledge and abilities to analyze and address health care issues from both management and policy perspectives.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

HPM 754. Health Care in the United States Structure and Policy. 3 Credits.
This core course is designed to provide students with an overview of the structure, systems, and policies of health care delivery in the United States. The goal is to increase students' knowledge and abilities to analyze and address health care issues from both management and policy perspectives.
Grading status: Letter grade.

HPM 757. Health Reform: Political Dynamics and Policy Dilemmas. 3 Credits.
This course focuses on the political and policy dynamics of health care reform.
Grading status: Letter grade.

HPM 758. Underserved Populations and Health Reform. 3 Credits.
This course gives students a greater understanding of programs available to serve underserved populations, and how the ACA (or any replacement) will impact on care provided to underserved populations. The course is designed to help students think critically about the impact of policy changes on different populations.
Grading status: Letter grade.

HPM 759. Health Policy Analysis and Advocacy for Health Leaders. 2 Credits.
The course will familiarize students with the history of health reform in the U.S., explore issues in health policy, and analyze the impact of health politics on policymaking.
Grading status: Letter grade.

HPM 760. Healthcare Quality and Information Management. 3 Credits.
Integrates essential methods and principles in healthcare quality and information management. Emphasis on use of information to measure and improve quality. Will include presentations, individual/group projects, exercises, and group discussion.
Grading status: Letter grade.

HPM 761. Quality and Utilization Management. 3 Credits.
Evolution and current status of health care quality management systems and programs for utilization control. Includes discussion of alternative quality assurance methods, hospital accreditation, and government programs.
Requisites: Prerequisite, HPM 564 or 754.
Grading status: Letter grade.

HPM 762. Quality of Care. 3 Credits.
The quality of health care in the US has garnered significant attention. This course will examine 1) the current state of the quality of care in the US, 2) approaches to assess quality of care, and 3) strategies that have been implemented or proposed to improve the quality of care.
Grading status: Letter grade.

HPM 765. Cancer Prevention and Control Seminar. 3 Credits.
An interdisciplinary overview of cancer prevention and control. Emphasis on projects and activities from perspectives of epidemiology, health behavior and education, and health policy and management. Appropriate research design and methodologies are covered.
Grading status: Letter grade
Same as: EPID 772, HBEH 765.

HPM 766. Making Equity a Priority in Health Care Quality: Strategies for Research, Policy and Practice.. 3 Credits.
This course examines recent work on defining, measuring, and improving health care equity in the contexts of research, policy, and practice. Health care inequities according to race/ethnicity, socioeconomic status, and geography will especially be highlighted.
Grading status: Letter grade.

HPM 767. Implementation Science in Health. 3 Credits.
This course introduces the concepts, theories, and methods of disseminating and implementing evidence-based health, behavioral health, and social service interventions. The course also examines the methods for conducting rigorous research on dissemination and implementation.
Grading status: Letter grade.

HPM 768. Informed Decision-Making in Cancer Care. 3 Credits.
This course will examine clinical decision-making in cancer care from the perspectives of providers, patients, and families.
Grading status: Letter grade.

HPM 769. Cancer Outcomes Research Seminar. 1 Credit.
The Cancer Outcomes Research Program (CORP) offers a weekly seminar for faculty, students, and fellows/trainees interested in multidisciplinary cancer outcomes research. Guest speakers' topics include Quality of Care, Patient-reported Outcomes (PROs), Comparative Effectiveness, Health Informatics, Cancer Disparities, Decision Making, Dissemination/Implementation, and Health Economics, as related to cancer outcomes.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 770. Operations Research for Healthcare Systems. 3 Credits.
Review of the systems analysis process in healthcare systems. Deterministic and random models, mathematical programming, queueing, simulation, forecasting, and measurement. Emphasis on model formulation and computer solution of decision models.
Grading status: Letter grade.

HPM 771. Introduction to Regression Models for Health Services Research. 3 Credits.
This course provides an introduction to regression models used in health services research. We will discuss both ordinary least squares regression models, in which the dependent variable is continuous, and logit models, in which the dependent variable is binary. Stata software will be used for examples and assignments.
Grading status: Letter grade.

HPM 772. Techniques for the Economic Evaluation of Health Care. 3 Credits.
This course provides an investigation of the theory, methods, and application of economic evaluation to health care. Topics include methods used to structure an economic evaluation, measure and summarize health outcomes and estimate their value to patients or to the public, and identify resources used and estimate their costs.
Requisites: Prerequisite, EPID 600.
Grading status: Letter grade.

HPM 773. Introduction to Program Evaluation in Public Health and Health Care Settings. 3 Credits.
This course is a three-credit hour introduction to program evaluation in public health and health care settings. We discuss key concepts in planning, conducting, reporting, and utilizing evaluations. Through a semester-long project students develop a viable program evaluation design for a real-world program.
Repeat rules: May be repeated for credit. 3 total credits. 2 total completions.
Grading status: Letter grade.

HPM 775. Analytic Techniques in Health Policy and Management. 3 Credits.
This course covers a variety of analytic techniques and methodologies basic to more advanced analysis of decision problems in health administration.
Grading status: Letter grade.

HPM 776. Healthcare Quality and Information Management. 2 Credits.
The HPM 776/777 and 776/778 course sequences integrate essential methods and principles in healthcare quality and information management, emphasizing use of information to measure and improve quality.
Repeat rules: May be repeated for credit. 4 total credits. 2 total completions.
Grading status: Letter grade.

HPM 777. Health Information and Quality Applications. 2 Credits.
The HPM 776/777 and 776/778 course sequences integrate essential methods and principles in healthcare quality and information management, emphasizing use of information to measure and improve quality.
Repeat rules: May be repeated for credit. 4 total credits. 2 total completions.
Grading status: Letter grade.

HPM 778. Public Health Information and Quality Application. 1.5 Credit.
The HPM 776/777 and 776/778 course sequences integrate essential methods and principles in healthcare quality and information management, emphasizing use of information to measure and improve quality.
Repeat rules: May be repeated for credit. 3 total credits. 2 total completions.
Grading status: Letter grade.

HPM 779. Operations Research for Healthcare Systems. 4 Credits.
Healthcare administrators face a range of decisions: some strategic, some financial, others operational. Through your program of study, you are developing analytical and conceptual skills that will help you to make better decisions when the time comes.
Repeat rules: May be repeated for credit. 8 total credits. 2 total completions.
Grading status: Letter grade.

HPM 781. Seminar in Comparative Effectiveness Research. 1 Credit.
The course provides an overview of substantive and methodological issues in CER, including randomized controlled trials; inferences from observational studies; literature syntheses; decision sciences/decision modeling; dissemination and implementation science; cross-cutting skills (e.g., strengths and limitations of administrative and clinical databases and electronic health records for CER).
Grading status: Letter grade.

HPM 783. Introduction to Healthcare Data and Applied Informatics. 3 Credits.
Explore and analyze healthcare data across the claims processing lifecycle. Using case studies and SAS software as a platform, gain skills for data management, analysis, and reporting to access healthcare utilization and patient outcomes, improve clinical practice, manage healthcare operations, gauge quality and performance, report financial metrics, and conduct research.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 785. Advanced Decision Modeling. 3 Credits.
This course covers advanced decision modeling methods in health care, including probabilistic sensitivity and value of information analysis, economic evaluation using clinical trial data, and discrete event simulation and agent-based/system dynamics modeling techniques. The course teaches analytical techniques and interpretation as well as and state-of-the-art best practices.
Requisites: Prerequisite, HPM 772.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

HPM 786. Introduction to Participatory Systems Science in Health: Methods Overview. 3 Credits.
This course introduces systems science methods and their uses for promoting health. Topics include an overview of systems science methods and the breadth of health-related applications. Students learn how to identify complex problems for which different types of systems science methods are useful.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

HPM 789. Master's Paper Development. 1 Credit.
Second-year M.S.P.H. or first-year M.P.H. students only. Broad topics related to the development and management of a research project are covered. The major goal is the development and completion of a proposal to be submitted for an independent master's paper.
Grading status: Letter grade.

HPM 790. Advanced Health Policy Analysis and Advocacy. 3 Credits.
This class will provide students with an opportunity to learn about the health policy analysis and advocacy processes in the United States. Students will gain an understanding of the different ways in which health policies are made at the legislative, regulatory, and judicial systems. Students will also learn how to identify and analyze different policy options to address health problems, conduct a stakeholders' analysis, and design an advocacy campaign.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 793. Health Policy and Management Internship. 1-2 Credits.
Restricted to HPM majors. Supervised field experience in approved health agencies. (Internship fee: $450.)
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 794. Patient-Reported Outcomes Measurement and Application in Healthcare Research and Practice. 3 Credits.
Patient-reported outcomes (PROs) include measures of health status, quality of life, and satisfaction with healthcare. This course provides an overview of the PRO measurement and research field, and discusses how to design and evaluate a PRO measure and best practices for integrating PRO in clinical research and healthcare settings.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

HPM 795. Introduction to Healthcare: Organizations and Policy. 4 Credits.
This course introduces students to the structure and systems of healthcare by examining policy issues surrounding choices for healthcare financing, organization, payment, regulation, and public health. The goal is to increase students' knowledge and abilities to analyze and address health care issues from both management and policy perspectives.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 804. Introduction to Healthcare Database Research. 3 Credits.
Course will provide foundational knowledge for using administrative health care claims and other relational data for health services research. Students will learn to: manage large databases in SAS, identify key variables in administrative data, and design and implement a study protocol.
Grading status: Letter grade
Same as: DPOP 804.

HPM 810. Leadership in Health Law and Ethics. 2 Credits.
Course is designed to provide learners with an introduction and overview of critical issues relating to law, ethics, and public health.
Grading status: Letter grade.

HPM 815. Graduate Health Economics Seminar. 1 Credit.
Permission of the instructor. Discussion of recent papers in health economics. Students must have solid knowledge of graduate microeconomics theory and econometrics.
Grading status: Letter grade.

HPM 820. Organizational Leadership Theory and Practice. 2 Credits.
Focus is on the behavioral, power-influence, trait, and situational approaches to leadership. Addresses core leadership principles plus leadership-followership theory, transformational and strategic leadership, and creating change.
Grading status: Letter grade.

HPM 823. Global Health. 1 Credit.
This course analyzes health systems in global perspective. Although health systems vary in structure, they face similar issues. This course includes discussion about the U.S. health system as well as health systems of developing, low-income, and middle-income countries. This course will assess WHO health systems building blocks, and will identify system elements from different countries that could be used to improve access, quality or health outcomes in the student's home or work country.
Grading status: Letter grade.

HPM 830. Translational Health Disparities: Research, Practice & Policy. 3 Credits.
This course will focus on the concepts, principles, methods, and applications of health disparities science, practice, and policy. It will integrate principles and practice of community engagement. Experts from diverse disciplines will give lectures on health disparities research, practice, and policy. Student teams will work on real life case studies.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 860. Population Perspectives for Health. 2 Credits.
This course examines historical and contemporary population health and public health perspectives. These perspectives shape the politics and policy making that affect global health. The practical goal is to help the entering DrPH student develop a grounding for further exploration of topics that may evolve into a dissertation.
Grading status: Letter grade.

HPM 871. Seminar in Teaching Health Policy and Management. 1 Credit.
Problems and processes of teaching health policy and management, including supervised practicum experience.
Grading status: Letter grade.

HPM 872. Selected Topics in Health Policy and Management: Advanced Seminar. 3 Credits.
Permission of the instructor. Integrated study of selected theory and research as it relates to the organization and delivery of health services. Separate seminars are developed to correspond to the doctoral student's specific interests and needs.
Grading status: Letter grade.

HPM 873. Policy Seminar in Health Policy and Management. 1 Credit.
Seminar on policy issues in health policy and management.
Grading status: Letter grade.

HPM 874. Advanced Research Seminar in HPM. 1 Credit.
This seminar will develop core competencies through a: (1) journal club to develop competencies in research design and expose students to diverse content and methodologies; and (2) professional development series.
Grading status: Letter grade.

HPM 880. Principles of Health Policy Research Methods. 3 Credits.
First course in the department's sequence in empirical analysis. Covers principles of statistical inference, univariate and bivariate analysis, statistical software applications, and mathematical concepts necessary for linear regression and further topics.
Repeat rules: May be repeated for credit. 3 total credits. 2 total completions.
Grading status: Letter grade.

HPM 881. Linear Regression Models. 3 Credits.
Equivalent background in probability theory/statistics for student lacking the prerequisite. Required preparation, matrix algebra, derivatives, logs/exponentials, and Stata. This course is an introduction to linear regression models. Topics include least squares regression, multicollinearity, heteroscedasticity, autocorrelation, and hypothesis testing.
Requisites: Prerequisite, BIOS 600.
Grading status: Letter grade.

HPM 882. Advanced Methodology in Health Policy and Management. 3 Credits.
This course is an introduction to linear regression models. Topics include linear algebra, least squares regression, multicollinearity, heteroscedasticity, autocorrelation, and hypothesis testing.
Requisites: Prerequisites, HPM 496 and 796.
Grading status: Letter grade.

HPM 883. Analysis of Categorical Data. 3 Credits.
This course is an introduction to the analysis of categorical data using maximum likelihood and other non-linear techniques and specification tests. Topics include models in which the dependent variable is not continuous, including logit, probit, censored data, two-part, and count models.
Requisites: Prerequisites, HPM 881 and 882; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

HPM 884. Overview to Health Servies Research/Health Policy. 3 Credits.
Pre-doctoral standing or permission of the instructor. This course provides an overview of the field of health services research and health policy. It introduces basic components of the research process, including literature synthesis, development of a research question and hypothesis, and use of conceptual models to guide research questions.
Grading status: Letter grade.

HPM 885. Health Services/Health Policy Research Methods. 3 Credits.
This course explores how to develop answerable, policy-relevant, ethical research questions; operationalize questions with actionable specific aims' and identify optimal research design for answering a particular question. It introduces primary data collection methods (e.g., interviews, focus groups, surveys) and secondary data sources (e.g., administrative claims, medical, records).
Requisites: Prerequisite, HPM 884.
Grading status: Letter grade.

HPM 886. Advanced Health Services Research Methods Applications. 3 Credits.
This course focuses on applications of research methods that are relevant to health services and health policy researchers. Skills and topics covered in HPM 884 and HPM 885.
Requisites: Prerequisites, HPM 884 and 885.
Grading status: Letter grade.

HPM 890. Special Topics in HPM. 0.5-3 Credits.
Course reserved for special topics in HPM for graduate-level students only.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 2 total completions.
Grading status: Letter grade.

HPM 893. Public Health Informatics Practicum. 2 Credits.
Course will help students: conduct research, develop public health informatics tools/projects, and further develop professional skills and knowledge essential in the public health informatics field. Students will participate in weekly (2 hr) informatics discussions with practicum preceptors and have an opportunity to meet and interact with successful health informatics professionals.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 930. Doctoral Seminar in Organization Theory and Health Service Organizations. 3 Credits.
Permission of the instructor for nondoctoral students. Review and application of selected developments in organization theory to health services research.
Grading status: Letter grade.

HPM 940. Leadership in Health Informatics. 1 Credit.
This one credit hour course introduces health leaders to the field of health informatics. Topics include overviews of various informatics interventions and implementation considerations for using information to improve the delivery of health services in diverse settings.
Repeat rules: May be repeated for credit. 4 total credits. 2 total completions.
Grading status: Letter grade.

HPM 945. Dissertation Planning and Preparation. 2 Credits.
Part of a sequence to guide students in planning, development, and implementation of Dr.P.H. dissertations. Designed to prepare students to identify appropriate research topics, plan the approach, organize, and write.
Grading status: Letter grade.

HPM 946. Dissertation Planning and Preparation II. 1 Credit.
The purpose of this course is to build on students' progress on work initiated in HPM 945 and continue to guide students through the steps necessary to complete a dissertation proposal. In collaboration with faculty, learners will assess the current state of their proposals and complete revisions and additional refinements, culminating in dissertations that are ready to be defended by fall of the third year in the program.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

HPM 947. Dissertation Planning and Preparation III. 1 Credit.
The purpose of this course is to build on students' progress on work initiated in HPM 946 and continue to guide students through the steps necessary to complete a dissertation proposal. In collaboration with faculty, learners will assess the current state of their proposals and complete revisions and additional refinements, culminating in dissertations that are ready to be defended by fall of the third year in the program.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

HPM 951. Literature Reviews and Appraisal. 2 Credits.
This course is the second in a sequence of courses in research design and methods in the executive Dr.P.H. program. The course explores the nature and process of scientific inquiry in the field of public health, establishing a foundation for methodological exploration, and focusing on the process of developing researchable questions.
Grading status: Letter grade.

HPM 952. Community Involvement in Research. 1 Credit.
Relevant literature and guest speakers will highlight cases depicting different levels of community involvement in public health research.
Grading status: Letter grade.

HPM 953. Practice Based Research. 2 Credits.
Designed to provide Dr.P.H. students with grounding in basic quantitative and qualitative research techniques used in health services research. Topics include types of research designs, measurement scales and coding nomenclatures, analytical techniques for quantitative data, research techniques for primary data collection, research opportunities with secondary data, and qualitative research methods.
Grading status: Letter grade.

HPM 955. Health Strategy. 2 Credits.
The purpose of this class is to enhance participants' behavioral complexity as leaders. Examines several major approaches to organizational strategy. Topics include diversification, transaction cost economics, agency theory, the resource-based view of the firm, and processes of strategic decision making.
Grading status: Letter grade.

HPM 956. Fundamentals of Research Analysis. 3 Credits.
This course will provide students with "hands-on" experience in qualitative, quantitative, and policy analytical techniques.
Grading status: Letter grade.

HPM 957. Crisis Leadership. 1 Credit.
Offered exclusively to students in the Executive DrPH program, this course exposes students to the theoretical and practical aspects of organizational crises and prepares them to lead effectively in the midst of crisis situations.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

HPM 958. Financial Leadership. 3 Credits.
DrPH students only. Understand the major concepts of financial oversight, including budgeting, financial statement analysis, internal controls, governance, and the Sarbanes-Oxley Act, and be able to apply them to all organizations, whether public, private, non-profit, or governmental. Utilizing both individual and team-based learning.
Grading status: Letter grade.

HPM 959. Strategic Management in Health Leadership. 2 Credits.
The purpose of this class is to enhance participants' competence in leading within complex and dynamic systems.
Grading status: Letter grade.

HPM 962. Marketing and Public Relations for Health Leaders. 2 Credits.
This course is one of a series of leadership courses in the executive Dr.P.H. Its main purpose is to help students understand public health from the perspective of external audiences.
Grading status: Letter grade.

HPM 963. Program Evaluation for Health Leaders. 2 Credits.
This course is one of a series of research courses in the executive Dr.P.H. Its main purpose is to help students understand the purposes of evaluation.
Grading status: Letter grade.

HPM 964. Implementation Science. 1 Credit.
This course will provide an overview of implementation research and practice. It will introduce students to guiding conceptual frameworks; barriers, facilitators, and implementation strategies at the intervention, individual, organizational, and policy levels; core issues related to sustainment and scale-up; and designs and methods to evaluate implementation research and practice efforts.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 965. Cultural Competence for 21st Century Health Leaders. 1 Credit.
We will examine the ways in which culture and cultural competency intersects with health, and how public health efforts (domestic-global) can benefit by understanding relationships between culture and health. Class sessions will be a combination of presentations by the instructor, class discussions, and student presentations. Two papers are required.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 99 total completions.
Grading status: Letter grade.

HPM 966. Systems Thinking/Collective Impact. 1 Credit.
This course has two parts, both focused on applying practical, structured systems thinking approaches to improve care, service delivery systems, policy, and/or environments in which we live. The first part of the course is person-centered applying systems thinking tools to understand individuals experiences as the foundation for driving change.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 967. Quality Improvement. 1 Credit.
Provides an introduction and overview of quality improvement efforts in health care. Explores the evidence for why quality improvements are needed, measurements of how health care quality is determined as well as how to implement and manage successful quality improvement techniques.
Grading status: Letter grade.

HPM 968. Managing the Healthcare Workforce. 1 Credit.
Workforce issues play a central role in virtually all organizational problems and challenges. At times, workforce issues may be the primary cause of a problem, while in other cases, they may be one of several underlying causes. Similarly, it is difficult to identify a solution to an organizational problem that does not involve some aspect of workforce management.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 969. Program Planning and Design. 1 Credit.
The course focuses on approaches to plan programs that promote individual and community health. The course is anchored in the Intervention Mapping approach. Students will develop an understanding of the essential steps in the program planning process: needs assessments, establishing program goals and objectives, and selecting and developing program strategies.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HPM 970. Training and Pedagogy for Health Leaders. 1 Credit.
In this class you will learn how to apply best pedagogical practices to develop effective educational experiences that meet learning needs of audiences in academic, organizational, and community settings.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

HPM 992. Master's (Non-Thesis). 3 Credits.

HPM 994. Doctoral Research and Dissertation. 3 Credits.

Master of Public Health (M.P.H.) Health Policy Concentration Description

The Health Policy concentration (https://sph.unc.edu/resource-pages/master-of-public-health-2/health-policy-concentration) trains future leaders in policy making and practice so they can produce cutting-edge analyses that address the complex challenges of health care delivery. Students learn the skills to design, implement, and evaluate health care and public health policies in a variety of settings, and to advocate for and lead changes in a policy setting. Graduates can demonstrate an intricate understanding of the current U.S. health care system, have expertise in analysis and advocacy, and possess the skills to effectively manage financial and human resources.

Requirements

Requirements for the **M.P.H.** degree in the **Health Policy** concentration

Code	Title	Hours
M.P.H. Integrated Core		
SPHG 711	Data Analysis for Public Health Fall 1	2
SPHG 712	Methods and Measures for Public Health Practice Fall 1	2
SPHG 713	Understanding Public Health Issues Fall 1	2
SPHG 721	Conceptualizing Public Health Solutions Spring 1	2
SPHG 722	Developing, Implementing, and Evaluating Public Health Solutions Spring 1	4
M.P.H. Concentration		
HPM 745	Financial Management and Analysis for Public and Nonprofit Entities Fall 1	3
HPM 754	Health Care in the United States Structure and Policy Fall 1	3
HPM 790	Advanced Health Policy Analysis and Advocacy Spring 1	3
HPM 730	Leadership and Workforce Management Strategies Fall 2	3
HPM 758	Underserved Populations and Health Reform Fall 2	3
M.P.H. Practicum		
SPHG 701	MPH Practicum Preparation Spring 1	2
Practicum: 200 minimum hours Summer 1		
SPHG 702	MPH Practicum Reflection Fall 2	1
M.P.H. Electives		
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
M.P.H. Culminating Experience		
HPM 992	Master's (Non-Thesis) Final Term	3
Total Hours		42

Competencies

Students will develop the following **Health Policy competencies**, building on the foundational public health knowledge they attain in the Gillings M.P.H. Integrated Core courses.

HPM01.	Examine past, current, and emerging issues related to the organization, financing, and management of health care delivery in the U.S.
HPM02.	Apply policy analysis skills to make evidence-informed policy recommendations that improve the health of populations.
HPM03.	Demonstrate an ability to influence the formulation of health policies by developing a broad-based advocacy strategy for policy change at the regulatory or legislative level.
HPM04.	Analyze existing and proposed governmental policies to assess implementation challenges and the impact of those policies on different populations and stakeholders.
HPM05.	Apply knowledge of governmental and nonprofit financial management and financial analysis to plan for, operate, monitor, and report the financial results of nonprofit and publicly financed health programs.
HPM06.	Apply key principles of organizational behavior, management, leadership, and workforce management.

Admissions

Please visit Applying to the Gillings School (https://sph.unc.edu/students/how-to-apply) first for details and information. Application to the residential M.P.H. is a two-step process. Please apply separately to (1) SOPHAS and (2) UNC–Chapel Hill (via the Graduate School application). Visit https://gradschool.sites.unc.edu/master-of-public-health/ for more details. If you are interested in the online M.P.H., please visit the M.P.H.@UNC (https://onlinemph.unc.edu) Web site and fill out an inquiry form.

Practicum

This 200 (minimum) hour planned, mentored, and evaluated work experience (paid or unpaid) gives students the real-world opportunity to integrate and apply knowledge, skills, and values from Year One of their Gillings M.P.H. training in a professional public health setting such as a nonprofit organization, hospital, local or state health department, or for-profit firm (public or private sectors). Please visit the M.P.H. Practicum Web site (https://sph.unc.edu/resource-pages/master-of-public-health-2/mph-practicum) for additional information. In order to meet graduation requirements, a Gillings M.P.H. practicum must:

1. Occur after a student has completed the Gillings M.P.H. Core courses, the M.P.H. practicum preparation course (SPHG 701), and at least one concentration-required course from the student's declared concentration. In extenuating circumstances and with the approval from the student's declared concentration, some exceptions may apply.
2. Yield a least two student-generated products, produced in the practicum setting for the practicum setting, that allow for attainment of at least three (CEPH) M.P.H. Foundational and two concentration-specific competencies (Appendix A). In extenuating circumstances and with the approval from the concentration, students can petition to substitute up to two CEPH Foundational competencies for the concentration-specific competencies.

3. Be mentored by a supervisor (preceptor) with an advanced degree in public health or equivalent experience with expertise in the practicum project area.
4. Comprise a *minimum* of 200 hours (equivalent to five weeks of full-time work) in a location approved for student travel (UNC Travel Policy (https://global.unc.edu/files/2018/02/UNC-Travel-Policy-Final.pdf)), and the student must complete *UNC Gillings International Pre-Departure Travel Requirements* prior to travel.

Culminating Experience

Each student completes a 3-credit culminating experience and produces a high-quality written product that is completed near the end of the program of study. This culminating experience ideally is delivered in a manner that is useful to external stakeholders, such as nonprofit or governmental organizations, and could take the form of a course-based capstone project or master's paper, but will be tailored to the concentration a student chooses.

Academic Advising and Faculty Mentoring

We are committed to providing quality academic advising and mentoring for all students. We ensure that M.P.H. students get the guidance they need with several components: 1) an orientation program that provides an overview of the types and sources of M.P.H. advising; 2) cohort advising sessions to disseminate information that is relevant to course planning and registration; 3) faculty mentoring that provides students with tailored support for their academic, professional, personal development, and practicum support.

M.P.H. students will complete a 2-semester, 12-credit-hour **Integrated Core** taught by an interdisciplinary team of instructors. The 6-credit first semester (fall) focuses on understanding public health issues, and the second semester (6-credit spring courses) focuses on creating solutions to those issues.

All M.P.H. students take **COMPASS (Core Online Modules to Promote and Accelerate Student Success).** These brief, self-paced online modules are open for students prior to their first academic year. Students can complete any and all parts of COMPASS up to and including the first week of class.

Electives: For the remaining 9 credits, students are free to choose elective courses from any of the 12 concentration areas listed above or from other courses in the Gillings School.

For information on policies and procedures, please visit the Gillings School Student Handbook (https://sph.unc.edu/students/gillings-school-student-handbook) Web site.

DEPARTMENT OF HISTORY (GRAD)

Contact Information

Department of History
Visit Program Website (https://history.unc.edu)

Lisa A. Lindsay, Chair

The graduate history program at UNC–Chapel Hill is committed to training professional historians to be both scholars and teachers. Our program allows ample choice to students in designing academic programs to fit particular interests and needs while providing them with rigorous training in African history, ancient history, Asian history, European history, global history, Latin American history, military history, Russian and East European history, United States history, and the history of women and gender. Degree requirements and departmental culture encourage comparative and interdisciplinary study. The program promotes close mentoring relationships with faculty and sustains a lively intellectual community among the graduate students.

Extensive information about the graduate program in history (https://history.unc.edu/graduate-program) is available online. Please use this site to supplement the brief summary included in the Graduate Catalog.

Admission

The department considers applications from those holding undergraduate degrees and those who have obtained M.A. degrees elsewhere. Students admitted to the department with an M.A. from another university will be reviewed by the faculty at the time of entry into the program to determine whether they should take a second M.A. degree here or proceed directly to the Ph.D. training. Preference in admission is given to students who intend to proceed to doctoral work, either directly or after completion of the M.A. degree.

Fellowships and Assistantships

The department funds most of its students through teaching assistantships or fellowships and also offers research grants and dissertation fellowships. In addition, The Graduate School awards fellowships to both entering students and students in the later phases of their doctoral training.

Libraries and Research Opportunities

The Davis and Wilson libraries have many collections of great value, and the University itself is conveniently situated close to a number of other research centers, particularly the Duke University Library and the North Carolina State Department of Archives and History (https://www.ncdcr.gov/about/office-archives-and-history). The library houses many outstanding special collections, including the William Henry Hoyt Collection on revolutionary France and the Peabody Collection on international law and diplomacy. Especially notable are the Southern Historical Collection (one of the most important manuscript collections on the subject), and the North Carolina Collection (a repository of books, magazines, pamphlets, and newspapers published in or about North Carolina). The Southern Oral History Program and the Center for the Study of the American South further enhance research and training in the history of our region.

The University Center for Global Initiatives, the Center for European Studies; the Institute for the Study of the Americas; the Center for Slavic, Eurasian, and East European Studies; the Center for Jewish Studies; the Carolina Center for Middle East and Muslim Civilizations; the Department of Asian Studies; and various Triangle Area research and study groups sponsor fellowships, seminars, speakers, and other opportunities in their respective areas. The Department of History participates in the interdisciplinary Medieval and Early Modern Studies Program (MEMs), which offers fellowships and research grants. MEMs places special emphasis upon viewing the premodern world from a global perspective. The Ancient World Mapping Center (http://awmc.unc.edu/wordpress) forms part of the Department of History, and there is no other unit worldwide that matches its mission of promoting cartography and geographic information science within ancient studies. In addition, a variety of workshops regularly bring together faculty and graduate students who share interest in particular historical topics or approaches.

The M.A. Program

The courses required for the M.A. degree usually include an introduction to historical thought (HIST 700) and an introductory seminar on research (HIST 900), to be taken in the first year of study; a two-semester reading colloquium or its equivalent in the student's major field; one additional seminar (900-level course); three hours of thesis credit (HIST 993); and four other courses, of which as many as three may be taken in fields other than that in which the student is concentrating or even in other disciplines. M.A. candidates must also pass a reading-knowledge examination in an appropriate foreign language, prepare a thesis based on original research, and pass an oral examination on the thesis. Students entering in fall 2010 and afterwards are expected to complete the M.A. after three semesters in residence.

The Ph.D. Program

Satisfactory completion of the M.A. does not automatically entitle a student to continue at the doctoral level. After the M.A. oral examination, the student's committee reaches a formal written decision about whether he or she should continue toward the Ph.D.

All courses taken at UNC–Chapel Hill for the M.A. (except HIST 993) may be credited toward the doctoral program. If The Graduate School approves for transfer credit up to six hours of graduate courses taken elsewhere, these may be credited as well. Candidates for the Ph.D. complete the following minimum course program (in addition to the requirements for the M.A.): a research seminar, two courses in a second field of study, research design (HIST 905), and dissertation credit (HIST 994). A reading knowledge of two foreign languages or advanced proficiency in one is required for the Ph.D. degree.

Each doctoral student must pass written comprehensive examinations in the major field as well as an oral examination that focuses on the dissertation. The final requirements for the Ph.D. are a dissertation and an oral examination on it.

The department expects doctoral students to proceed efficiently with their work. For those who enter the program in fall 2010 and afterwards and who are pursuing both the M.A. and the Ph.D., all coursework and the comprehensive written and oral examinations must be completed by the end of the sixth semester. For those who enter the program with an acceptable M.A. from another institution, A.B.D. (all but dissertation) status must be achieved within four semesters. The entire degree program must be completed within a period of eight years.

Professors

Cemil Aydin, Modern Middle Eastern History, Modern Asian History, Intellectual Histories of Ottoman and Japanese Empires
William L. Barney, Political History of 19th-Century America
W. Fitzhugh Brundage, United States History Post-Civil War, History of the American South
Marcus G. Bull, Medieval History
Melissa M. Bullard, History of the Renaissance, Mediterranean, Early Modern Europe, and the Transatlantic World
Kathryn Burns, Colonial Latin American History, Gender and Women's History
Peter A. Coclanis, United States Economic and Business History, Colonial History
Kathleen A. DuVal, Early American History, Early American Women's History
Joseph T. Glatthaar, Civil War Era, United States Military History
Karen Hagemann, Modern German, European, and Transatlantic History, Women's and Gender History, History of Military and War
Konrad H. Jarausch, 19th- and 20th-Century European and German History
Lloyd S. Kramer, Modern European Intellectual History
Klaus Larres, Contemporary Transatlantic Relations, 20th-Century American, German, British Foreign Policies
Wayne E. Lee, World Military History, Colonial American and Native American History
James L. Leloudis, North Carolina History, History of the Modern American South, Education, Race, Labor, and Reform History
Lisa A. Lindsay, West African Social History, History of the African Diaspora
Genna Rae McNeil, African American History, 20th-Century United States Social Movements History
Louise McReynolds, 19th-Century Russian History, Cultural Studies, Imperialism
Fred Naiden, Ancient History, Greek Law, Religion, and Warfare History
Susan D. Pennybacker, Modern British Political History, History of the Former British Empire
Louis A. Pérez Jr., Latin American History, Caribbean History, Cuban History
Cynthia Radding, Colonial Latin American History, Environmental History, Frontiers and Borderlands
Donald J. Raleigh, 20th-Century Russian/Soviet History
Donald M. Reid, Modern French History
Sarah D. Shields, Middle East History
Jay M. Smith, Early Modern France History
Harry L. Watson, North Carolina History, Antebellum United States History

Associate Professors

Karen Auerbach, Modern Jewish History, Polish History
Chad Bryant, 20th-Century Eastern European History
Flora Cassen, Jewish History, Early Modern History
Erik S. Gellman, 20th-Century American Race, Labor, and Urban History
Jerma A. Jackson, 20th-Century Social and Cultural History, African American History
Michelle King, Modern Chinese History
Miguel La Serna, Latin American History, Modern Andean Region
Malinda Maynor Lowery, Native American History
Terence V. McIntosh, Early Modern German and European History, Economic, Social, and Religious History
Michael C. Morgan, Modern International History, Global History
Iqbal Sevea, Modern South Asian History
John W. Sweet, Early American History, Gender History
Eren Tasar, Central Asia, Institutions, Islam, Religion and Politics, Social History, and Soviet Union
Michael Tsin, Modern Chinese History
Katherine Turk, Histories of Women, Gender, and Sexuality, Modern United States Law, Labor, and Social Movements History
Benjamin Waterhouse, 20th-Century American Political and Business History
Brett E. Whalen, Medieval History
Molly Worthen, North American Religious and Intellectual History

Teaching Associate Professor

Matthew Andrews, United States History, History of Sport

Assistant Professors

Emma Flatt, Medieval South Asian History
Lauren Jarvis, African and South African History, History of Religion
William Sturkey, U.S. History since 1865, Modern African American, American South

Joint Appointments

Robert C. Allen, (American Studies) History of American Popular Entertainment and Popular Culture
Emily Burrill, (Women's and Gender Studies) Gender History, African History, History of Former French Empire
Claude A. Clegg, (African, African American, and Diaspora Studies) African American History, Modern U.S. History, Atlantic World
Morgan Pitelka, (Asian Studies) Asian History, Japanese History, Material Culture Studies
Daniel J. Sherman, (Art History) French Cultural History, Modern Art

Adjunct Professor

Kenneth R. Janken, (African, African American, and Diaspora Studies) 20th-Century African American History

Adjunct Associate Professors

Jessica A. Boon, (Religious Studies) Medieval and Early Modern History of Christianity
Daniel M. Cobb, (American Studies) 20th-Century American Indian History
Raul Necochea, (Social Medicine) Modern Medicine Global
Anne M. Whisnant, American History, Public History

Adjunct Assistant Professors

Rachel Seidman, (Southern Oral History Program) Oral History, History of U.S. Women's Activism

Faculty in Phased Retirement

Richard Talbert, Greek and Roman History

Professors Emeriti

Stephen B. Baxter
Frederick O. Behrends
Judith M. Bennett
E. Willis Brooks
Christopher R. Browning
John C. Chasteen
Stanley J. Chojnacki
William Ferris

Peter G. Filene
W. Miles Fletcher
Jacquelyn D. Hall
Barbara J. Harris
Reginald Hildebrand
John Kasson
Lawrence D. Kessler
Richard H. Kohn
William E. Leuchtenburg
Roger W. Lotchin
Donald G. Mathews
W. James McCoy
Michael R. McVaugh
John K. Nelson
Theda Perdue
John E. Semonche
Gerhard L. Weinberg
Joel R. Williamson

HIST

Advanced Undergraduate and Graduate-level Courses

HIST 421. Alexander. 3 Credits.
The rise of Macedonia; the careers of Philip II and Alexander (with emphasis on the latter's campaigns); the emerging Hellenistic Age. The course integrates computer (including Web site) and audiovisual materials throughout.
Gen Ed: HS, NA, WB.
Grading status: Letter grade
Same as: PWAD 421.

HIST 422. Ancient Greek Warfare. 3 Credits.
War and the warrior in the archaic and classical Greek world, seventh to the fourth centuries BCE. Honors version available
Gen Ed: HS, NA, WB.
Grading status: Letter grade
Same as: PWAD 422.

HIST 422H. Ancient Greek Warfare. 3 Credits.
War and the warrior in the archaic and classical Greek world, seventh to the fourth centuries BCE.
Gen Ed: HS, NA, WB.
Grading status: Letter grade
Same as: PWAD 422H.

HIST 423. Archaic Greece, 800-480 BCE. 3 Credits.
HIST 225 strongly recommended. Topical approach to the social and cultural history of the ancient Greek city states, ca. 800-336 BCE.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

HIST 424. Classical Greece (Sixth-Fourth Centuries BCE). 3 Credits.
HIST 225 strongly recommended. The life and times of the ancient Athenians from the sixth to fourth centuries BCE.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

HIST 425. Roman History, 154 BCE-14 CE. 3 Credits.
Explores the transformation from Republic to Principate. Conducted in considerable part by student reports and classroom discussions.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

HIST 427. The Early Roman Empire, 14 CE-193 CE. 3 Credits.
Focuses upon administrative, social, and economic themes. Conducted in considerable part by student reports and classroom discussions.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

HIST 428. The Later Roman Empire, 193 CE-378 CE. 3 Credits.
Focuses upon administrative, social, and economic themes. Conducted in considerable part by student reports and classroom discussions.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

HIST 429. Ancient Sexuality. 3 Credits.
This course deals with the complex topic of ancient sexuality, which includes courtship, marriage, family structure, public and private morality, and law enforcement. In terms of historical method, this course teaches students how to discover evidence for social history in both diverse documentary and literary sources.
Gen Ed: HS, WB.
Grading status: Letter grade.

HIST 431. The Medieval Church. 3 Credits.
The nature and workings of the Western church between roughly 600 and 1300. Emphasis on the church "from within," organization, missionary strategies, liturgy, monasticism, popular religion.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

HIST 432. The Crusades. 3 Credits.
Students in this course will examine Christian attitudes toward holy war, crusading, and other forms of coercive violence from the 11th until the 15th centuries, with a focus on the major crusades to the Holy Land.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

HIST 434. Medieval England. 3 Credits.
A consideration of England's origins, unification, and development as a national monarchy. Primary emphasis is on political, ecclesiastical, and cultural aspects.
Gen Ed: HS, WB.
Grading status: Letter grade.

HIST 435. The Medieval University. 3 Credits.
The origins and development of the university during the period 1100 to 1400; types of organization, curricula and degrees, intellectual life, town-gown and student-master relationships.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

HIST 436. Medieval Theology, Gender, and the Body. 3 Credits.
This course will explore notions of male and female sanctity from Late Antiquity to the High Middle Ages. Topics will include martyrdom, the cult of relics, and bodily resurrection.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

HIST 437. Aristocratic Culture in the Central Middle Ages. 3 Credits.
This course has as its theme the lives of aristocratic men and women in western Europe between about 850 and 1200 CE. Discusses the nature of aristocratic identity, the trends that shaped the lives of aristocratic men and women, and the different roles of men and women within aristocratic culture.
Gen Ed: HS, WB.
Grading status: Letter grade.

HIST 438. Medieval Masculinities, 500-1200. 3 Credits.
This course examines the multifaceted constructions of masculinity found in narrative texts produced in medieval western Europe. Focuses on topics such as gender relations, male self-fashioning, homosocial bonding, family structures. Sources studied range from epic and romance to chronicles and visual records. Honors version available
Gen Ed: HS, CI, WB.
Grading status: Letter grade.

HIST 438H. Medieval Masculinities, 500-1200. 3 Credits.
This course examines the multifaceted constructions of masculinity found in narrative texts produced in medieval western Europe. Focuses on topics such as gender relations, male self-fashioning, homosocial bonding, family structures. Sources studied range from epic and romance to chronicles and visual records.
Gen Ed: HS, CI, WB.
Grading status: Letter grade.

HIST 440. Gender in Indian History. 3 Credits.
An analysis of the roles of women and men in Indian societies from the early to the modern periods. Topics include the cultural construction of gender and sexuality; beauty and bodily practices; gender and religion; gender and politics; race, imperialism, and gender. Previously offered as HIST/ASIA 556.
Gen Ed: HS, BN.
Grading status: Letter grade
Same as: ASIA 440.

HIST 441. Beauty and the Body in Pre-Colonial Indian History. 3 Credits.
This course will discuss theories of beauty and the body in Indian History (c. 3 - 17th centuries) and their relation to differing constructions of gender.
Grading status: Letter grade.

HIST 442. Religion, Co-existence, and Conflict in Pre-Colonial India. 3 Credits.
This course traces the fascinating history of material, cultural, and theological exchanges and conflicts between individuals belonging to two of the world's major religions: Hinduism and Islam. Throughout the course we will also analyze how modern commentators have selectively used the past to inform their understandings of the present. Previously offered as HIST/ASIA 555.
Gen Ed: HS, WB.
Grading status: Letter grade
Same as: ASIA 441.

HIST 451. 1492: The Expulsion of the Jews from Spain. 3 Credits.
The largest and most prosperous Jewry of Europe lived in medieval Spain. The 1492 expulsion, driven by the Inquisition and Catholic monarchy, not only ended Spanish Jewish life but also forced a traumatic redefinition of Jewish identity. This course focuses on the causes and consequences of the expulsion of 1492.
Gen Ed: HS, WB.
Grading status: Letter grade
Same as: JWST 451.

HIST 452. The Renaissance: Italy, Birthplace of the Renaissance, 1300-1550. 3 Credits.
A study of the people, culture, and intellectual achievements of the Italian Renaissance with emphasis on the interaction between culture and society.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

HIST 453. Mediterranean Societies and Economics in the Renaissance World. 3 Credits.
A picture of Mediterranean social and economic life 1300 to 1600, with special focus on rural and urban society, family structure, patronage, work and wages, public and private finance.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

HIST 454. The Reformation. 3 Credits.
Examines a movement of religious reform that shattered Latin Christendom and contributed many of the conditions of early modern Europe. Emphases: religious, political, social.
Grading status: Letter grade
Same as: RELI 454.

HIST 455. Europe in the 17th Century. 3 Credits.
The century marks the watershed in European development. Emphases: statecraft, the emerging state-system, the new scientific world view, the evolution of European society.
Grading status: Letter grade.

HIST 458. Europe and the World Wars, 1914-1945. 3 Credits.
Europe and the experience of total war, with special focus on national conflicts; ideological conflicts among fascism, communism, and liberalism; and the dictatorships of Hitler and Stalin.
Grading status: Letter grade.

HIST 459. Global Evangelicalism since 1600. 3 Credits.
This is a survey of evangelical Christianity from 1600 to the present. We will trace the roots of evangelicalism in post-Reformation Europe, its diverse expressions and political influence in modern Western culture, and its recent spread throughout the Global South.
Gen Ed: HS, GL.
Grading status: Letter grade.

HIST 460. Princes and Reformations in Germany, 1400-1600. 3 Credits.
Examines the major late medieval religious, social, and political developments plus the Reformation and Counter-Reformation. Topics include Luther's theology, the German Peasant's War, Jewish-Christian relations, witch-hunting, and family life.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

HIST 461. War and Enlightenment in Germany, 1600-1815. 3 Credits.
Examines major political, social, and cultural developments. Topics include the growth of absolutist government, Prussia's militarism and rivalry with Austria, German Jewry, Baroque music, the Enlightenment, and the Napoleonic wars.
Gen Ed: HS, NA, WB.
Grading status: Letter grade.

HIST 462. Germany, 1806-1918: Politics, Society, and Culture. 3 Credits.
This course examines the changes in German politics, culture, and society during the long 19th century, with a focus on the Anti-Napoleonic Wars and the following era of restoration, the Vormärz and the Democratic Revolution of 1848 to1849, the German Unification of 1871 and the Wilhelmine Empire, and finally World War I. Honors version available
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 462H. Germany, 1806-1918: Politics, Society, and Culture. 3 Credits.
This course examines the changes in German politics, culture, and society during the long 19th century, with a focus on the Anti-Napoleonic Wars and the following era of restoration, the Vormärz and the Democratic Revolution of 1848 to1849, the German Unification of 1871 and the Wilhelmine Empire, and finally World War I.
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 463. Germany since 1918: Politics, Society, and Culture. 3 Credits.
This course examines the changes in German politics, culture, and society during the 20th century, with a focus on the Weimar Republic, the Third Reich and World War II, the reshaping of East and West Germany since the post-war era, and the unification in 1989. Honors version available
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 463H. Germany since 1918: Politics, Society, and Culture. 3 Credits.
This course examines the changes in German politics, culture, and society during the 20th century, with a focus on the Weimar Republic, the Third Reich and World War II, the reshaping of East and West Germany since the post-war era, and the unification in 1989.
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 466. Modern European Intellectual History. 3 Credits.
The main developments in European thought from the Enlightenment to the 20th century, with some attention to social context. Readings include Voltaire, Rousseau, Hegel, Marx, Tocqueville, Sand, Flaubert, Nietzsche, Freud. Honors version available
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 466H. Modern European Intellectual History. 3 Credits.
The main developments in European thought from the Enlightenment to the 20th century, with some attention to social context. Readings include Voltaire, Rousseau, Hegel, Marx, Tocqueville, Sand, Flaubert, Nietzsche, Freud.
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 468. Art, Politics, and Society in France, 1850-1914. 3 Credits.
An examination of the interaction of artists, criticism, and the market with larger political and social developments in France, with an emphasis on primary sources.
Gen Ed: VP, NA.
Grading status: Letter grade
Same as: ARTH 483.

HIST 469. European Social History, 1815-1970. 3 Credits.
The social transformation of Europe from agrarian through postindustrial society, discussing population growth, family history, spread of education, class structure, social conflict, group ideologies, and mass politics, as well as everyday lives and popular lifestyles.
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 474. Britain in World Affairs: British Foreign Policy since World War II. 3 Credits.
The course provides a historical, political, and socio-economic framework for understanding British history and politics in the 20th and 21st centuries. We will assess important turning points in domestic British politics, the main focus will be on Britain's foreign relations during both the Cold War and the post-Cold War years.
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 475. Feminist Movements in the United States since 1945. 3 Credits.
This course will examine the unprecedented surge of feminist thought and activism in the postwar United States. Course materials and discussions will trace feminists' varied conceptions of empowered womanhood and their expectations of the state, society at large, and each other. Honors version available
Gen Ed: HS, US.
Grading status: Letter grade
Same as: WGST 476.

HIST 475H. Feminist Movements in the United States since 1945. 3 Credits.
This course will examine the unprecedented surge of feminist thought and activism in the postwar United States. Course materials and discussions will trace feminists' varied conceptions of empowered womanhood and their expectations of the state, society at large, and each other.
Gen Ed: HS, US.
Grading status: Letter grade
Same as: WGST 476H.

HIST 476. Borderlands: Religion and Ethnicity in Modern East Central Europe. 3 Credits.
The history of modern Eastern, East Central, and southeastern Europe has been shaped by the ethnic and religious diversity of the regions. This course examines experiences in the Russian, Habsburg, and Ottoman Empires and their successor states from the 19th century to the present day.
Gen Ed: HS, BN.
Grading status: Letter grade
Same as: JWST 476.

HIST 477. Revolution in Russia, 1900-1930. 3 Credits.
A close study of Russia's age of revolution from the reign of the last tsar to the turbulent Stalin Revolution of 1929, with emphasis on the revolutions of 1917.
Gen Ed: HS, BN.
Grading status: Letter grade.

HIST 478. Stalin and After: The USSR, 1929-Present. 3 Credits.
An in-depth examination of Soviet and post-Soviet history from 1929 to the present.
Gen Ed: HS, BN.
Grading status: Letter grade.

HIST 479. History of Female Sexualities in the West. 3 Credits.
Spanning the ancient, medieval, and modern West, this course explores normative and non-normative female sexualities, ideas about female bodies, and the regulation of female sexuality by families, religions, and states.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: WGST 479.

HIST 480. Russia's 19th Century: Cultural Splendor, Imperial Decay. 3 Credits.
The diplomatic, military, and ideological confrontations with the West; the decline and fall of the Russian autocracy; the evolution of reform thought; and revolutionary opposition.
Gen Ed: HS, BN.
Grading status: Letter grade.

HIST 481. From Communists to Capitalists: Eastern Europe since 1945. 3 Credits.
An examination of the countries of Eastern Europe, their origins and development since World War II, their cohesion and conflict.
Gen Ed: HS, BN.
Grading status: Letter grade.

HIST 482. Russia, Eurasian Empire. 3 Credits.
This course examines the development of the Russian Empire, from the Mongol conquest in the 13th century to the transformation of Imperial Russia in the Soviet Union after 1917.
Gen Ed: HS, BN.
Grading status: Letter grade.

HIST 483. Nation and Religion in Russia: Orthodoxy, Islam, and Judaism. 3 Credits.
This course explores the role of nation and religion in shaping political, cultural, and social experience and change in Tsarist and Soviet Russia through the prism of Christianity, Islam, and Judaism.
Gen Ed: HS, BN.
Grading status: Letter grade.

HIST 484. Islam in Tsarist and Soviet Russia. 3 Credits.
This course examines the role that Islam has played in the history of the Russian sphere--interior Russia, Siberia, the Caucasus, and Central Asia--from the 18th century to the present. Topics include methods of rule, social change, Islamic institutions, attempts to bureaucratize religion, and resistance.
Gen Ed: HS, BN.
Grading status: Letter grade.

HIST 485. From Fiddler on the Roof to the Holocaust: East European and Soviet Jewish History. 3 Credits.
Eastern Europe was one of the largest centers of Jewish civilization from premodern times to the Second World War, giving rise to important religious, cultural, and political developments in Jewish modernity. This course examines main developments of Jewish society from the late 18th century until the aftermath of the Holocaust.
Gen Ed: HS, BN.
Grading status: Letter grade
Same as: JWST 485.

HIST 486. Extremism, Terrorism, and Security in Postwar Europe. 3 Credits.
In the debate on how to efficiently combat terrorism without abandoning the rule-of-law, it is often neglected that this is not a new problem. This course will examine European states' reactions to national and international terrorism since the 1960s. Case studies will include Germany, Italy, and the United Kingdom. Honors version available
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: PWAD 485.

HIST 486H. Extremism, Terrorism, and Security in Postwar Europe. 3 Credits.
In the debate on how to efficiently combat terrorism without abandoning the rule-of-law, it is often neglected that this is not a new problem. This course will examine European states' reactions to national and international terrorism since the 1960s. Case studies will include Germany, Italy, and the United Kingdom.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: PWAD 485H.

HIST 489. The History of the 2008 Financial Crisis. 3 Credits.
This course explores the 2008 financial crisis as a window into the longer history of global capitalism. We consider the construction of the sub-prime mortgage market, mass securitization, deregulation, and the interconnected nature of global finance, as well as the historical development of crises within financial capitalism. Honors version available
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 489H. The History of the 2008 Financial Crisis. 3 Credits.
This course explores the 2008 financial crisis as a window into the longer history of global capitalism. We consider the construction of the sub-prime mortgage market, mass securitization, deregulation, and the interconnected nature of global finance, as well as the historical development of crises within financial capitalism.
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 490. Special Topics in History. 3 Credits.
Subject matter will vary with instructor but will focus on some particular topic or historical approach. Course description available from the departmental office. Honors version available
Gen Ed: HS.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

HIST 490H. Special Topics in History. 3 Credits.
Subject matter will vary with instructor but will focus on some particular topic or historical approach. Course description available from the departmental office.
Gen Ed: HS.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

HIST 493. Internship in History. 1-3 Credits.
Permission of the director of undergraduate studies. A supervised internship at an organization or institution engaged in the promotion of historical studies or the collection and preservation of historical documents and artifacts.
Gen Ed: EE- Academic Internship.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

HIST 495. Directed Readings in History. 1-3 Credits.
Permission of the director of undergraduate studies. Directed reading and relevant writing, supervised by a member of the department, in a selected field of history.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

HIST 496. Independent Research in History. 1-3 Credits.
Permission of the director of undergraduate studies. Directed primary source research and production of a research project, supervised by a member of the department. Prior coursework in the selected field is recommended.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

HIST 500. Gender, Empire, and Nation in Europe and Beyond, 18th to the 20th Century. 3 Credits.
This course explores the growing body of research on gender, empire, and nation/nationalism in modern European history by focusing on problems of national belongings and citizenship, state and nation building and empire formation, and the gendered discourses and representations of nation and empire.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: WGST 500.

HIST 501. The Gender of Welfare: Comparative Perspectives, 19th and 20th Century. 3 Credits.
This course explores the growing body of research on gender and welfare in a comparative perspective by focusing on the sexual division of labor in the workforce and the family, related social and family policies, including child care, and social citizenship in a comparative perspective.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: WGST 501.

HIST 508. Europe and Humanitarian Aid since 1945: Concepts, Actors, Practices. 3 Credits.
This seminar offers students an insight into the role of Europe within the global regime of humanitarian aid. After looking at the history and at theoretical definitions of humanitarianism, the course will examine a variety of case studies to assess the changing role of Europe in the post-war era.
Gen Ed: HS, GL.
Grading status: Letter grade.

HIST 509. The World History of Slavery. 3 Credits.
This course considers slavery in comparative context, from ancient times to the present and across the world. It offers a chronological narrative and raises themes for comparison, including women in slavery and challenges to slavery. This approach allows for a wide view of this pervasive institution and develops analytical skills.
Gen Ed: HS, GL.
Grading status: Letter grade.

HIST 510. Human Rights in the Modern World. 3 Credits.
This course looks at the international history of human rights from the Enlightenment to the present and considers how human rights ideas first emerged, how they evolved, and how they became so influential. Honors version available
Gen Ed: HS, GL.
Grading status: Letter grade.

HIST 510H. Human Rights in the Modern World. 3 Credits.
This course looks at the international history of human rights from the Enlightenment to the present and considers how human rights ideas first emerged, how they evolved, and how they became so influential.
Gen Ed: HS, GL.
Grading status: Letter grade.

HIST 511. 9/11 in World History. 3 Credits.
This course focuses on three great decolonization movements-Communism, Nationalism, and Islamism-in the postcolonial Islamic world, in an attempt to understand the impact of the 9/11/2001 terrorists attacks on the social, political, and cultural life of Muslims in predominantly Islamic countries and diasporic communities in the West.
Gen Ed: HS, GL.
Grading status: Letter grade.

HIST 514. Monuments and Memory. 3 Credits.
Explores the role of monuments in the formation of cultural memory and identity, both nationally and globally. Topics include the construction of identities in and through public spaces, commemoration of both singular individuals and ordinary citizens, and the appearance of new types of post-traumatic monuments in the 20th century.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: ARTH 514.

HIST 516. Historical Time. 3 Credits.
This course explores the ways in which Western historians and other students of the past from Adam Ferguson to Stephen Jay Gould have conceptualized and packaged historical time. Honors version available
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 516H. Historical Time. 3 Credits.
This course explores the ways in which Western historians and other students of the past from Adam Ferguson to Stephen Jay Gould have conceptualized and packaged historical time.
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 517. Gender, Military, and War in Comparative Perspective. 3 Credits.
This course introduces students to new research on the history of gender, the military, and war in a comparative perspective. It explores the interrelations between changing military systems, types of warfare, the gender order, as well as political, social, and cultural currents in modern history.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: PWAD 517, WGST 517.

HIST 518. Colloquium in World Military History. 3 Credits.
Reading colloquium in world military history, emphasizing Europe, focusing on the most significant issues, methods, and approaches in the field today.
Grading status: Letter grade.

HIST 526. History of the Andes. 3 Credits.
This course offers a survey of the history of the Andean region. The primary focus will be either the pre-Inca, Inca, and colonial periods or the 19th and 20th centuries, depending on the instructor.
Gen Ed: HS, BN.
Grading status: Letter grade.

HIST 529. Mexico, 1750-1870: War, Independence, and Reforms: Citizenship and Conflict in a New Nation. 3 Credits.
This upper-division course focuses on the major issues, debates, and conflicts that arose over citizenship in a multi-ethnic society, tensions between church and state, and the definition of national territory in Mexico as a new and modernizing nation.
Gen Ed: HS, BN.
Grading status: Letter grade.

HIST 531. History of the Caribbean. 3 Credits.
Thematic approach to the history of the West Indies, with emphasis on the period from European conquest through the 20th century. Topics include colonialism, slavery, monoculture, United States-Caribbean relations, and decolonization.
Grading status: Letter grade.

HIST 532. History of Cuba. 3 Credits.
Thematic approach to Cuban history, from conquest to the revolution. Attention is given to socioeconomic developments, slavery and race relations, the 19th-century independence process, and the 20th-century republic.
Grading status: Letter grade.

HIST 533. History of Brazil. 3 Credits.
This course is concerned primarily with the creation of a new society through race mixture and culture change, and with the political and economic development of Brazil.
Gen Ed: HS, BN.
Grading status: Letter grade.

HIST 534. The African Diaspora. 3 Credits.
A comparative examination of the movements, experiences, and contributions of Africans and people of African descent from the period of the Atlantic slave trade to the present.
Gen Ed: HS, BN, GL.
Grading status: Letter grade.

HIST 535. Women and Gender in African History. 3 Credits.
Analysis of historical transformations in Africa and their effects on women's lives and gender relations. Particular themes include precolonial societies, colonialism, religious change, urban labor, nationalism, and sexuality. Honors version available
Gen Ed: HS, BN.
Grading status: Letter grade.

HIST 535H. Women and Gender in African History. 3 Credits.
Analysis of historical transformations in Africa and their effects on women's lives and gender relations. Particular themes include precolonial societies, colonialism, religious change, urban labor, nationalism, and sexuality.
Gen Ed: HS, BN.
Grading status: Letter grade.

HIST 536. Revolution in the Modern Middle East. 3 Credits.
This course will focus on revolutionary change in the Middle East during the last century, emphasizing internal social, economic, and political conditions as well as international contexts.
Grading status: Letter grade
Same as: ASIA 536.

HIST 537. Women in the Middle East. 3 Credits.
Explores the lives of women in the Middle East and how they have changed over time. Focus will change each year.
Gen Ed: HS, BN.
Grading status: Letter grade
Same as: ASIA 537, WGST 537.

HIST 538. The Middle East and the West. 3 Credits.
This course explores changing interactions between the Middle East and the West, including trade, warfare, scientific exchange, and imperialism, and ends with an analysis of contemporary relations in light of the legacy of the past.
Grading status: Letter grade
Same as: ASIA 538.

HIST 539. The Economic History of Southeast Asia. 3 Credits.
This course is intended as a broad overview of Southeast Asian economic history from premodern times to the present day.
Grading status: Letter grade
Same as: ASIA 539.

HIST 550. Gender in Chinese History. 3 Credits.
This course is designed to introduce undergraduates to recent historical scholarship in the field of Chinese gender studies. Topics include family and kinship, the body and bodily practices, social space, writing, sexuality, work, and law, covering both the premodern and modern periods. No prior coursework required.
Gen Ed: HS, BN.
Grading status: Letter grade.

HIST 557. Bandits, Rebels and Storytellers: Fiction and History in India. 3 Credits.
This course examines the histories, representations, and cultural perceptions surrounding bandits and rebels in modern India. The representations of bandits and rebels are studied in the light of the emergence of nationalism, shifting notions of gender and masculinity, race relations, and emergence of capitalist structures.
Gen Ed: HS, BN.
Grading status: Letter grade
Same as: ASIA 557.

HIST 561. The American Colonial Experience. 3 Credits.
An in-depth history of colonial North America. Topics include: interactions among Native Americans, Europeans, and Africans and the founding and development of English, French, and Spanish colonies in the lands that eventually became the United States.
Gen Ed: HS, US, WB.
Grading status: Letter grade.

HIST 562. Oral History and Performance. 3 Credits.
This course combines readings and field work in oral history with the study of performance as a means of interpreting and conveying oral history texts. Honors version available
Gen Ed: EE- Performing Arts.
Grading status: Letter grade
Same as: COMM 562, FOLK 562, WGST 562.

HIST 562H. Oral History and Performance. 3 Credits.
This course combines readings and field work in oral history with the study of performance as a means of interpreting and conveying oral history texts.
Gen Ed: EE- Performing Arts.
Grading status: Letter grade
Same as: COMM 562H, FOLK 562H, WGST 562H.

HIST 564. The American Revolution, 1763-1815. 3 Credits.
Major topics: constitutional conflict in the British empire; independence and war; Confederation and Constitution; growth of political parties and nationality in a period of domestic change and international conflict.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: PWAD 564.

HIST 565. Civil War and Reconstruction, 1848-1900. 3 Credits.
Focus is on causes, nature, and consequences of the Civil War.
Grading status: Letter grade
Same as: PWAD 565.

HIST 566. The History of Sexuality in America. 3 Credits.
A history of the sexual practices, desires, and understandings of Americans, from earliest colonial encounters to the late 20th century.
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 568. Women in the South. 3 Credits.
An exploration of the distinctive themes in Southern women's lives, using the evidence of history and literature.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: WGST 568.

HIST 570. The Vietnam War. 3 Credits.
A wide-ranging exploration of America's longest war, from 19th-century origins to 1990s legacies, from village battlegrounds to the Cold War context, from national leadership to popular participation and impact.
Gen Ed: HS, GL.
Grading status: Letter grade
Same as: ASIA 570, PWAD 570.

HIST 571. Southern Music. 3 Credits.
Explores the history of music in the American South from its roots to 20th-century musical forms, revealing how music serves as a window on the region's history and culture.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: FOLK 571.

HIST 576. The Ethnohistory of Native American Women. 3 Credits.
Introduces students to the study of Native American women through the perspectives of anthropology, history, and autobiography.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: WGST 576.

HIST 577. United States Foreign Relations in the 20th Century. 3 Credits.
How the United States came to occupy a leading role in world affairs as a diplomatic, military, economic, and cultural power and what that role has meant to Americans and to other peoples, especially during the Cold War.
Gen Ed: HS, GL, NA.
Grading status: Letter grade
Same as: PWAD 577.

HIST 578. Transatlantic Relations and Contemporary Geo-Politics from the Cold War to the Present. 3 Credits.
This course considers transatlantic relations in its security, political, and economic dimensions. The course also analyzes U.S. attempts to construct a more united European continent. It is the main aim of this course to give students a structured overview of transatlantic relations and geo-political developments from 1945 to the present.
Gen Ed: HS, GL.
Grading status: Letter grade
Same as: PWAD 578.

HIST 581. American Constitutional History to 1876. 3 Credits.
In a classroom environment characterized by discussion, simulation, and interaction, the antecedents, formation, and interpretation of the Constitution are confronted in a broad historical matrix.
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 582. American Constitutional History since 1876. 3 Credits.
Using a classroom environment similar to HIST 581, constitutional adjustments and change are related to psychological, political, social, and economic factors, and to Supreme Court members.
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 584. The Promise of Urbanization: American Cities in the 19th and 20th Centuries. 3 Credits.
A survey of the development of American cities since 1815 and their influence upon American history.
Grading status: Letter grade.

HIST 585. Race, Basketball, and the American Dream. 3 Credits.
This course explores how Americans have used basketball for integration, economic mobility, and political protest. Particular focus is on how black Americans have used the game for individual expression and political and economic advancement; and the ways the game has influenced ideas about race, "whiteness," and "blackness" in our society.
Gen Ed: HS, US.
Grading status: Letter grade.

HIST 587H. The New South. 3 Credits.
This course explores the transformation of the South from the time of the Civil War and emancipation to the contemporary rise of the Sunbelt.
Grading status: Letter grade.

HIST 589. Race, Racism, and America: (United States) Law in Historical Perspective. 3 Credits.
This course will historically and critically examine the changing legal status of people of color in the United States. Within a broad historical matrix from the colonial era to the present, it will focus on African Americans, Native Americans, Asian Americans, Latina/os, and United States law.
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 593. Exploring the U.S. South Hands On and Ears Open: Internship at the Southern Oral History Program. 3 Credits.
Interning at the SOHP offers experiential education in the intellectual, organizational, and practical work of oral history. You will learn to do oral history interviews, contribute to a collaborative research project, and help this esteemed research center with programming, processing interviews, communications, and digital projects. We accept four interns per semester and you must apply through the Southern Oral History Program.
Gen Ed: HS, EE- Academic Internship.
Grading status: Letter grade.

HIST 625. Technology and American Culture. 3 Credits.
Technology's impact on American thought and society and the response it has engendered. Topics will include the factory town, search for utopia, impact of Henry Ford, war, and depersonalization.
Gen Ed: HS, NA.
Grading status: Letter grade.

HIST 670. Introduction to Oral History. 3 Credits.
Introduces students to the uses of interviews in historical research. Questions of ethics, interpretation, and the construction of memory will be explored, and interviewing skills will be developed through field work.
Gen Ed: HS, CI.
Grading status: Letter grade
Same as: FOLK 670.

HIST 671. Introduction to Public History. 3 Credits.
Introduces the theory, politics, and practice of historical work conducted in public venues (museums, historic sites, national parks, government agencies, archives), directed at public audiences, or addressed to public issues.
Gen Ed: HS, EE- Mentored Research, NA.
Grading status: Letter grade
Same as: AMST 671.

HIST 672. Writing for a Popular Audience. 3 Credits.
A seminar on the art of translating academic expertise for a general audience. Students read model works ranging from philosophy to biology, workshop story ideas, and learn how to publish in print and online media. Open to all disciplines.
Gen Ed: CI.
Grading status: Letter grade.

HIST 691H. Honors in History. 3 Credits.
Permission of the instructor. Introduction to the methods of historical research; designed to lead to the completion of an honors essay.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

HIST 692H. Honors in History. 3 Credits.
Permission of the instructor. Introduction to the methods of historical research; designed to lead to the completion of an honors essay.
Gen Ed: HS, CI, EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

HIST 700. Thinking Historically. 3 Credits.
Introduces students to the intellectual currents and schools of thought that have characterized the historical profession over time. By examining such diverse conceptual frameworks, students will prepare themselves to tackle more confidently the research projects they will design and execute in HIST 900 and 901.
Grading status: Letter grade.

HIST 701. Introduction to Medieval and Early Modern Studies. 3 Credits.
This is an interdisciplinary course to introduce graduate students to the sources, methods, and approaches of medieval studies.
Grading status: Letter grade.

HIST 702. Introduction to Historical Education. 3 Credits.
Provides an introduction to teaching history. Topics include the history of historical education, planning a course, the role of the teacher, goals and methods, using new technologies, and evaluating students.
Grading status: Letter grade.

HIST 703. Professional Lives of Historians. 3 Credits.
In this course, students explore the many identities of professional historians. Through readings and assignments, students learn about the state and future of the historical profession, develop skills that will serve them in their careers, and identify their own goals as professional historians and/or public intellectuals.
Grading status: Letter grade.

HIST 711. Introductory Colloquium on Early Modern Europe. 3 Credits.
Directed readings on early European history, from Britain through European Russia.
Grading status: Letter grade.

HIST 712. Introductory Colloquium on Modern Europe. 3 Credits.
Directed readings on modern European history, from Britain through European Russia.
Grading status: Letter grade.

HIST 713. Introductory Colloquium in Latin American History before 1810. 3 Credits.
Directed readings on Latin American history from preconquest to 1810; required for students entering the field.
Grading status: Letter grade.

HIST 714. Introductory Colloquium in the History of Latin America since 1810. 3 Credits.
Directed readings on Latin American history in the National Period; required for students entering the field.
Grading status: Letter grade.

HIST 717. Introduction to Military History. 3 Credits.
An introduction to the methods, issues, and literature of military history, including classic works and scholarship representative of a variety of approaches from history and other disciplines.
Grading status: Letter grade.

HIST 719. Readings in African History. 3 Credits.
An introduction to major works and themes in the history of premodern and modern African history.
Grading status: Letter grade.

HIST 720. Introduction to Asian History. 3 Credits.
An introduction to major works and themes in the history of Asia with an emphasis on the history of China, Japan, and South Asia.
Grading status: Letter grade.

HIST 721. Readings in European Expansion and Global Interaction, 1400-1800. 3 Credits.
Examines the dynamics of cross-cultural contacts and exchange between Europe and other civilizations in the context of a growing global interconnectedness.
Grading status: Letter grade.

HIST 722. Readings in Contemporary Global History. 3 Credits.
Focus on the 19th and 20th centuries. Mixing theory, case studies, and comparisons, the readings reflect disciplinary diversity.
Grading status: Letter grade.

HIST 723. Readings in Global Cold War History. 3 Credits.
A historiographical overview of the Cold War in a global context, 1945-1991. The course familiarizes students with major works in the field and the latest scholarship.
Grading status: Letter grade.

HIST 725. Selected Readings in the Comparative or Global History of Women and Gender. 3 Credits.
Readings in the history of women and gender in a comparative, global, or transnational perspective.
Grading status: Letter grade
Same as: WGST 725.

HIST 726. Introductory Colloquium in United States History to 1788. 3 Credits.
Directed readings on American history from the precolonial period through the American Revolution; required for students entering the field.
Grading status: Letter grade.

HIST 727. Introductory Colloquium in United States History, 1788 to 1900. 3 Credits.
Directed readings on American history from the Constitution through the end of the nineteenth century; required for students entering the field.
Grading status: Letter grade.

HIST 728. Introductory Colloquium in United States History since 1900. 3 Credits.
Directed readings on American history in the twentieth century; required for students entering the field.
Grading status: Letter grade.

HIST 730. Feminist and Gender Theory for Historians. 3 Credits.
Readings in contemporary feminist and gender theory, focused especially on theories that address the construction, writing, and general practice of history.
Grading status: Letter grade
Same as: WGST 730.

HIST 735. Readings in the History of Sexuality and Gender. 3 Credits.
Readings on the historical study of gender and sexuality and on definitions of femininity and masculinity in different historical contexts.
Grading status: Letter grade
Same as: WGST 735.

HIST 741. Readings in the History of Science and Medicine. 3 Credits.
Examines the principal historiographical problems in the history of science and medicine, focusing on a different topic each year.
Grading status: Letter grade.

HIST 742. History and Memory: An Introduction into Theory, Methodology, and Research. 3 Credits.
This graduate seminar explores the theory, methodology, and scholarship on history and memory, and examines some broad questions about the importance of studying collective memory. We will seek to understand both, different theoretical and methodological approaches, and their practical use in historical research and writing.
Grading status: Letter grade.

HIST 743. The Holocaust, Genocide and Historical Methodology. 3 Credits.
This seminar will familiarize students with foundational works of Holocaust historiography as well as with newer works that challenge old interpretations and methodologies. Throughout the course we will look at the mutual influences of historical writing and memory of the Holocaust as societies have come to terms with the dark past of the Second World War; the course will also examine historical writing itself as a form of representation and memory.
Grading status: Letter grade.

HIST 746. History and the Social Sciences. 3 Credits.
The relationship of the social sciences to history, logic of inquiry, use of quantitative methods, and introduction to the computer.
Grading status: Letter grade.

HIST 751. Problems in Greek History, 600-323 BCE. 3 Credits.
Permission of the instructor. This course introduces graduate students to problems in the use of literary, epigraphic, and archaeological sources for a range of issues, including religion, law, and warfare.
Grading status: Letter grade.

HIST 752. History of Rome, 27 BCE-180 CE. 3 Credits.
Readings, reports, and discussions on selected topics of current importance for the field. Topics to be announced in advance.
Grading status: Letter grade.

HIST 755. Readings in Medieval and Early Modern Women's History. 3 Credits.
A readings course on the history of women, gender, and sexuality in Medieval Europe.
Grading status: Letter grade
Same as: WGST 755.

HIST 756. Medieval England. 3 Credits.
Prerequisite, HIST 437.
Grading status: Letter grade.

HIST 757. Late Medieval England. 3 Credits.
Readings in English history, ca. 1300-1500, with a focus on social, economic, political, and legal topics.
Requisites: Prerequisite, HIST 434.
Grading status: Letter grade.

HIST 760. Europe in the 16th Century. 3 Credits.
A survey of the best historical literature emphasizing churches, varieties of secular power, and religious practice.
Grading status: Letter grade.

HIST 761. Readings in Early Modern European History. 3 Credits.
Selected readings and discussion of topics and relevant historiography in early modern Europe.
Grading status: Letter grade.

HIST 763. Early Modern Germany. 3 Credits.
A topical survey of the political, social, and economic history of early modern Germany.
Grading status: Letter grade.

HIST 765. Problems in the History of the French Revolution. 3 Credits.
Readings, reports, and discussion on aspects of the French Revolutionary upheaval in Europe.
Grading status: Letter grade.

HIST 770. Readings in Modern European Women's and Gender History. 3 Credits.
A readings course in the history of women in Europe since 1500.
Grading status: Letter grade
Same as: WGST 770.

HIST 771. Topics in Modern European History. 3 Credits.
This course examines particular themes, events, and historiographical debates of Modern European History in a seminar setting.
Grading status: Letter grade.

HIST 772. Readings in the Intellectual History of Europe. 3 Credits.
A readings course on specific themes and debates in modern European intellectual life.
Grading status: Letter grade.

HIST 773. Readings in European Social History. 3 Credits.
This graduate readings course discusses classic works as well as recent landmark books about the development of European society in the 19th and 20th centuries.
Grading status: Letter grade.

HIST 774. Readings in Modern European History, 1918-1945. 3 Credits.
Directed readings, varying from year to year, selected from historiographical classics as well as the most recent scholarly publications.
Grading status: Letter grade.

HIST 775. Studies in Modern English History. 3 Credits.
Directed readings in 19th- and 20th-century English history. Topics vary from year to year.
Grading status: Letter grade.

HIST 776. Topics in French History. 3 Credits.
Open to graduate students from all departments. This course examines one period or one set of problems within French history since the Renaissance. Topics determined by instructor.
Grading status: Letter grade.

HIST 777. Colonialism and European Visual Culture, 1800-1990. 3 Credits.
Considers the role of visual representation in the construction of European empire and its associated knowledges from the Napoleonic expedition to Egypt to debates over primitivism in the 1980s.
Grading status: Letter grade
Same as: ARTH 777.

HIST 781. Readings in Russian History, 1796-1917. 3 Credits.
Selected readings and discussion of various topics in the history of Russia from the late 18th century to the Russian Revolution.
Grading status: Letter grade.

HIST 782. Readings in Soviet History. 3 Credits.
A historiographical reading colloquium covering Soviet and post-Soviet Russian history, 1917-present. The course familiarizes students with Western, Soviet, and post-Soviet literature on the most important issues in Soviet history.
Grading status: Letter grade.

HIST 783. Introduction to Russian, Eurasian, and East European History. 3 Credits.
This interdisciplinary seminar provides an in-depth look at some of the major topics in modern Russian, East European, and Eurasian history.
Grading status: Letter grade.

HIST 784. Readings in East European History. 3 Credits.
Directed readings on modern East European history.
Grading status: Letter grade.

HIST 787. Readings in Modern Centeral Asian History. 3 Credits.
The peoples of Islamic Central Eurasia are united by linguistic, cultural, and religious ties. Their history is divided between study fields: Soviet/Russian, Chinese, and Islamic Studies. Course takes historiographical diversity as a point of departure, interrogating the major debates that have animated the study of Islamic Central Asia across disciplines.
Grading status: Letter grade.

HIST 810. Colonial Encounters:. 3 Credits.
This course introduces students to a variety of theoretical and methodological approaches to the study of colonialism. It encourages them to examine critically the ways in which scholars apply and use the concepts of "coloniality" and "postcoloniality," and to assess the avenues through which those concepts might prove to be productive in informing their own research.
Grading status: Letter grade.

HIST 815. Topics in African History. 3 Credits.
A readings-based course on particular topics or approaches in African history. Topics may vary by semester and will be announced in advance.
Grading status: Letter grade.

HIST 816. Topics in Asian History. 3 Credits.
Instructors use this course to focus on particular topics or historical approaches related to Asian history.
Grading status: Letter grade.

HIST 820. Problems in Latin American History. 3 Credits.
Instructors use this course to focus on particular topics or approaches in Latin American history. Topics to be announced in advance.
Grading status: Letter grade.

HIST 831. Readings in Early American History. 3 Credits.
Selected readings and research in United States history and its multicultural dimensions up to the American Revolution.
Grading status: Letter grade.

HIST 832. The American Revolutionary Era, 1763-1789. 3 Credits.

HIST 833. The United States in the Federal Period, 1789-1820. 3 Credits.
Readings, discussion, and book lists designed to give familiarity with the historiographical problems, research opportunities, and bibliography of the period.
Grading status: Letter grade.

HIST 834. The United States in the Middle Period, 1815-1860. 3 Credits.
An analysis of the material and ideological transformations within the antebellum republic, which climaxed in the sectional crisis of the 1850s.
Grading status: Letter grade.

HIST 835. Readings in the Antebellum South. 3 Credits.
A review of traditional and modern literature on the pre-Civil War South, focusing on the interrelationships of its economy, society, culture, and politics.
Grading status: Letter grade.

HIST 840. Civil War and Reconstruction, 1860-1876. 3 Credits.
An intensive readings course on key works comprising the core historiography for Civil War-Reconstruction America. Discussions, short papers, and a 20-page historiographical paper comprise the bulk of the assignments.
Grading status: Letter grade.

HIST 841. Readings in the South since Reconstruction. 3 Credits.
Readings, reports, and discussions on selected topics with a view to gaining familiarity with the literature of the field.
Grading status: Letter grade.

HIST 842. Political and Social History of Modern America. 3 Credits.
A course of readings for advanced students that relate social history to the history of the state in America in the period from the Great Depression and the New Deal to the present.
Grading status: Letter grade.

HIST 845. Readings in United States Labor History. 3 Credits.
A graduate reading seminar on the history of America's workers from the 20th century to the present. The struggle of American workers to achieve a measure of dignity and security is examined from social, economic, and political perspectives. The course critically evaluates recent scholarship in the field of labor history.
Grading status: Letter grade.

HIST 860. Colloquium in United States Military History. 3 Credits.
Reading colloquium in United States military history focusing on the most significant issues, methods, and approaches in the field today.
Grading status: Letter grade.

HIST 861. History of United States Foreign Relations. 3 Credits.
Readings and research exploring various topics in modern American foreign relations and diplomacy.
Grading status: Letter grade.

HIST 863. Readings in Urban History. 3 Credits.
A readings course to introduce students to the main topics in urban history.
Grading status: Letter grade.

HIST 864. 19th and 20th Century American Labor History. 3 Credits.
Graduate reading seminar in American labor history intended for students doing research as well as those writing M.A. and doctoral theses. Graduate students from fields other than United States history welcome. Students will read texts and articles by scholars in a wide variety of fields of American labor history.
Grading status: Letter grade.

HIST 865. Readings in United States Women's and Gender History. 3 Credits.
A readings course on the history of women and gender in the United States.
Grading status: Letter grade
Same as: WGST 865.

HIST 870. Readings in African American History. 3 Credits.
Graduate students compile bibliographies and read important contributions to various aspects of African American history, stressing shifts in African American historiography and including very recent works.
Grading status: Letter grade.

HIST 875. Topics in American Cultural History. 3 Credits.
Research seminar exploring various topics in United States cultural history to be announced in advance.
Grading status: Letter grade.

HIST 878. Readings in Native American History. 3 Credits.
Readings in and discussions of the major works in Native American history.
Grading status: Letter grade
Same as: AMST 878.

HIST 880. Readings in the Global History of Capitalism. 3 Credits.
This course exposes graduate students to the classical and burgeoning debates among historians over the history of global capitalism around the world from its antecedents in the medieval and early modern period until the present.
Grading status: Letter grade.

HIST 890. Topics in History for Graduates. 3 Credits.
Instructors use this course to focus on particular topics or historical approaches. Specific course descriptions are available each semester on the departmental Web site (www.unc.edu/depts/history).
Grading status: Letter grade.

HIST 899. Independent Study for Graduate Students. 3 Credits.
Permission of the instructor. Independent reading programs for graduate students whose needs are covered by no course immediately available. For students resident in Chapel Hill or vicinity.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HIST 900. Crafting a Historical Project. 3 Credits.
Intended to help students develop a plan of research and writing, select a bibliography, develop an understanding of the literature available for their topic, and articulate a problem or facet of the topic to which they can contribute original research in their M.A. thesis.
Grading status: Letter grade.

HIST 901. M.A. Research Seminar. 3 Credits.
A seminar for those preparing the M.A. thesis. Pursuing original research in primary sources, students prepare full drafts of their theses.
Grading status: Letter grade.

HIST 902. Writing for Historians: A Seminar on the Craft of Historical Writing. 3 Credits.
Doctoral students focus intensively on the writing process to produce an article-length piece of work suitable for publication. Topics include quotation, translation, narrative technique, structuring argument, and addressing a wide audience.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

HIST 905. Dissertation Design. 3 Credits.
Required of all doctoral candidates in the last semester of course work, this practicum helps students refine a dissertation topic and produce a prospectus.
Grading status: Letter grade.

HIST 906. Dissertation Seminar. 3 Credits.
A seminar for A.B.D. students, offered as demand and resources permit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

HIST 910. Ancient History. 3 Credits.
Research seminar on selected topics of current importance for the field. Topics to be announced in advance.
Grading status: Letter grade.

HIST 911. Medieval Dissertation Design. 3 Credits.
This course complements HIST 905, focusing on specific skills, sources, and methods for designing a dissertation prospectus in the field of medieval European history.
Grading status: Letter grade.

HIST 912. Historiography and Narrative: Ancient, Medieval and Early Modern. 3 Credits.
This course involves the close study of narrative historiographical texts before 1700. It introduces students to narratological approaches to textual analysis as well as to scholarly work, in a variety of disciplines, on the question of memory. The course is interdisciplinary in its orientation.
Grading status: Letter grade.

HIST 924. Seminar in Modern European History. 3 Credits.
This writing seminar explores the process of working with primary sources, creating a narrative, and shaping an interpretation based on examples from the last two centuries of European history.
Grading status: Letter grade.

HIST 925. Seminar in Russian and East European History. 3 Credits.
A multi-purpose writing seminar on Russian and Soviet history in which students may write a seminar paper, M.A. thesis, dissertation prospectus, or dissertation chapter.
Grading status: Letter grade.

HIST 930. American Revolution, 1763-1789. 3 Credits.
Research seminar exploring various topics related to United States history in the late 18th century around the time of the American Revolution.
Grading status: Letter grade.

HIST 948. Research in Native American History. 3 Credits.
This course introduces graduate students to research methods in Native American history, including the methodology of ethnohistory and the techniques of compiling a source base, taking notes, and outlining.
Grading status: Letter grade
Same as: AMST 948.

HIST 951. Introductory Seminar in Military History. 3 Credits.
Introduction to research that should result in a major research product. Students will alternate reading classic texts in military history with discussions of project conceptualization and research strategies.
Grading status: Letter grade.

HIST 952. Advanced Seminar in Military History. 3 Credits.
A research seminar designed to bring major projects (usually an M.A. thesis) to completion.
Grading status: Letter grade.

HIST 971. Seminar in Latin American History. 3 Credits.
All students will be required to complete an original research paper based on use of primary sources on a Latin American topic corresponding to the theme of the seminar to be announced in advance.
Grading status: Letter grade.

HIST 975. Seminar in Women's and Gender History. 3 Credits.
Writing seminar for graduate students on all levels who work on the history of women and gender.
Grading status: Letter grade
Same as: WGST 975.

HIST 990. Seminar in History. 3 Credits.
Given on demand and as resources permit, this seminar allows faculty to respond to student interest in particular topics.
Grading status: Letter grade.

HIST 993. Master's Research and Thesis. 3 Credits.
Individual work on the M.A . thesis, pursued under the supervision of the M.A. advisor.
Repeat rules: May be repeated for credit.

HIST 994. Doctoral Research and Dissertation. 3 Credits.
Individual work on the doctoral dissertation, pursued under the supervision of the Ph.D. advisor.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.

HUMAN MOVEMENT SCIENCE CURRICULUM (GRAD)

Contact Information

Human Movement Science Curriculum
Visit Program Website (http://hmsc.unc.edu)

Vicki Mercer, Director

The Department of Allied Health Sciences in the School of Medicine offers an interdisciplinary program of study in human movement science leading to the doctor of philosophy degree. The intent of this program is to develop research and teaching scholars who are capable of producing and disseminating new knowledge in the field of human movement science.

The doctoral program in human movement science is offered through the cooperative effort of the Division of Physical Therapy (UNC School of Medicine), the Department of Exercise and Sport Science (College of Arts and Sciences), and the Department of Biomedical Engineering (Gillings School of Global Public Health). This program is designed to provide students an opportunity for doctoral study in areas that will increase our knowledge of human movement. The program focuses on contributing to the scientific basis of human movement and developing theory and methods for maintaining health, preventing disability, and improving movement ability. Focusing on normal movement and movement disability requires a special emphasis in research and education that draws upon yet differs from the focus of related sciences. Students of varied academic disciplines are accepted into the program. Students in our program study across several areas of interest in human movement:

- Biomechanics
- Brain injury/concussion
- Exercise physiology
- Injury prevention
- Neuromuscular control and motor learning
- Rehabilitation (musculoskeletal, neurological)

Note: The Division of Physical Therapy retired the M.S. in human movement science degree, so applicants are no longer being accepted for the M.S. as a terminal degree. Bachelor's level applicants will be considered, given appropriate background and experience in movement science research.

Research Facilities

Several research facilities are available for students in the departments participating in the program. These include the Motion Analysis, Interdisciplinary Human Movement, and Neural Plasticity Laboratories in the Division of Physical Therapy's Center for Human Movement Science; the Applied Physiology, Cadaver/Anatomy, Neuromuscular, Matthew Gfeller Sport-Related Traumatic Brain Injury Research Center, Exercise Oncology, and Sports Medicine Laboratories in the Department of Exercise and Sport Science; and the Orthopedic Biomechanics Laboratory in the Department of Orthopedics. These laboratories are equipped with state-of-the-art instruments for measuring a range of human movement and performance through behavioral, physiological, biomechanical, cognitive, sensory, and computer modeling instrumentation.

Admission

Student selection is based primarily on academic records and research experience. Requirements include the following:

- A master's degree in a field related to human movement (e.g., physical therapy, exercise science, athletic training, biomedical engineering, anatomy, etc.) is preferred, but qualified candidates with a bachelor's degree will be considered for admission.
- A grade point average of 3.0 or better in the last two years of the student's most recent degree program. A typical student who is admitted has a 3.4 GPA or better.
- GRE scores in the 50th percentile or higher. Only official scores submitted from ETS will be accepted. In rare cases, admission is granted when scores are below the 50th percentile.
- Coursework in the following areas, completed within the past five years, is a prerequisite for admission. Completion of coursework in these areas longer than five years ago may require completion of an admissions examination.
  - Introductory graduate-level statistics
  - Human anatomy
  - Human physiology
  - Physics or biomechanics
  - Chemistry
  - Psychology
- Three letters of academic recommendation
- Curriculum vitae
- Written statement of the academic/career goals and research interests
- Name of the faculty member who has agreed to mentor the applicant (Applicants should contact a faculty member in their area of interest prior to beginning the application process.)

The curriculum core requirements allow flexibility in designing programs of study to meet the student's interests. Each student's program of study is developed under the guidance of his or her advisor and committee, and includes three major components:

1. Human Movement Science (16 credit hours)

- 6 credits of Human Movement Science core courses HMSC 700, HMSC 701, and HMSC 702
- 6 credits of advanced Human Movement Science content
- 4 credits of doctoral seminar in Human Movement Science (IHMS 870)

2. Research and Inquiry

- a research design course
- 2 graduate level statistics courses
- a grant writing course
- research ethics training

3. Practical Experience

- 2 research experiences
- 2 teaching experiences
- doctoral examination
- dissertation prospectus
- written dissertation and dissertation defense

These are minimal requirements. Other specific requirements will vary depending on the student's background, area of interest, and planned career path.

Professors

Claudio Battaglini, Management of Cancer Treatment-Related Symptoms; Prescriptive Exercise Intervention
Troy Blackburn, Neuromuscular Function and Motor Control; Knee Injury Prevention
Carol A. Giuliani, Neural Basis of Motor Control; Disability in Aging; Stroke Recovery; Movement Analysis
Deborah Givens, Neuromuscular Control and Painful Musculoskeletal Conditions; Efficacy of Interventions for Low Back Pain and Hip and Knee Osteoarthritis
Michael T. Gross, Biomechanics; Sports Medicine; Orthopedics; Orthotics
Kevin M. Guskiewicz, Athletic Training; Sports Medicine; Neurotrauma
Anthony C. Hackney, Exercise Endocrinology–Stress Physiology
Karen McCulloch, Balance and Cognitive Interactions in Older Adults and Following Traumatic Brain Injury; Effects of Military Mild Traumatic Brain Injury on Balance and Cognitive Function, Including Dual-Task Performance and Return to Duty Implications
Darin Padua, Biomechanics and Sports Medicine; Knee Injury Prevention
Debbie E. Thorpe, Pediatrics; Motor Learning; Developmental Disabilities Across the Lifespan; Aquatics
Bing Yu, Biomechanics; Rehabilitation; Movement Analysis; Biomechanical Modeling

Associate Professors

Michael Lewek, Stroke Rehabilitation; Biomechanics; Neuromuscular Function
Vicki S. Mercer, Postural Control in Older Adults and Individuals with Neurological Dysfunction; Stroke Recovery
Jason Mihalik, Sports Medicine, Sports and Military Neurotrauma
Brian Pietrosimone, Sports Medicine; Knee Osteoarthritis
Prudence Plummer, Cognitive-Motor Interactions During Walking; Interventions for Dual-Task Interference; Stroke; Multiple Sclerosis; Clinical Trials
Eric Ryan, Exercise Physiology; Exercise Adaptation, Nutritional Supplementation, and Aging on Neuromuscular Function
Abbie Smith-Ryan, Exercise Physiology; Exercise and Nutrition Interventions; Body Composition
Paul S. Weinhold, Biomechanics of Repetitive Motion Injury; Tissue Engineering

Assistant Professors

Erik Hanson, Exercise Physiology, Exercise Testing and Training in Clinical Populations; Exercise Oncology and Immunology
Zachary Kerr, Sports Injury Surveillance; Sports-Related Injury Prevention
Kristen Kucera, Sport and Occupational Injury Epidemiology, Including Musculoskeletal Disorders, Ergonomics, Return to Work
Johna Register-Mihalik, Traumatic Brain Injury – Negative Consequences, Prevention, Education and Clinical Management
Lee Stoner, Interactions between Lifestyle Behavioural Factors and Cardio-Metabolic Disorders; Assessing Cardio-Metabolic Health; Translation of Basic and Applied Science to Affect Public Health Outcomes
Erik Wikstrom, Impact of Musculoskeletal Injury on Sensorimotor Control of the Lower Extremity; Ankle Joint Injury

Affiliated Faculty

Jacqueline H. Cole, Department of Biomedical Engineering
J.D. DeFreese, Athlete Psychological Health, Physical Health, and Social Functioning
Jason Franz, Department of Biomedical Engineering
Steven George, Duke Clinical Research Institute, Department of Orthopedic Surgery
Kelly Giovanello, Department of Psychology and Neuroscience
Richard Goldberg, Department of Biomedical Engineering
Yvonne Golightly, Department of Epidemiology
Joseph Hopfinger, Department of Psychology
He Huang, Department of Biomedical Engineering
Laura Linnan, Department of Health Behavior
Stephen Marshall, Gillings School of Global Public Health
Deborah Porterfield, Department of Family Medicine
William Prentice, Department of Exercise and Sport Science
Tim Sell, Duke Department of Orthopedic Surgery

HMSC 700. Scientific Basis of Human Motion. 3 Credits.

HMSC 701. Scientific Basis of Human Motion. 3 Credits.

HMSC 702. Physiology of Exercise. 3 Credits.
The study of the physical, biochemical, and environmental factors that influence human performance. Emphasis is placed on metabolic, cardiovascular, respiratory, muscular, and endocrine systems. Three hours of lecture and two hours of laboratory per week.
Requisites: Prerequisite, EXSS 276 or 376.
Grading status: Letter grade
Same as: EXSS 780.

HMSC 710. Measurement of Muscle Function. 3 Credits.
This course will look at basic concepts related to the physiology underlying muscle activity and appropriate measurements of muscle function, while at the same time introduce you to data acquisition, analysis, and programming approaches to collecting and analyzing relevant muscle-function data.
Grading status: Letter grade.

HMSC 743. Topics in Motor Control and Motor Learning: Therapeutic Implications. 3 Credits.

HMSC 770. Electronics for Human Movement Science. 1-21 Credits.

HMSC 780. Introduction to Outcomes Research in Health Care. 3 Credits.

HMSC 782. Infant and Family Assessment. 2-3 Credits.

HMSC 782L. Laboratory in Infant and Family Assessment. 0.5-21 Credits.

HMSC 790. Advanced Kinesiology and Biomechanics. 4 Credits.

HMSC 791. Analysis of Human Motion. 3 Credits.

HMSC 793. Advanced Ortho Assessment. 4 Credits.

HMSC 795. Human Kinetics. 4 Credits.

HMSC 801. Seminar in Human Movement Science. 2 Credits.

HMSC 803. Problems in Human Movement Science. 1-3 Credits.

HMSC 877. Independent Study in Human Movement Science. 1-21 Credits.

HMSC 879. Research in Human Movement Science. 1-21 Credits.

HMSC 881. The Neural Basis of Motor Control. 3 Credits.

HMSC 885. Beach Course. 1-3 Credits.
Human movement seminar held at the beach.
Grading status: Letter grade.

HMSC 886. Understanding Research. 3 Credits.

HMSC 887. Developmental Motor Control. 1-3 Credits.

HMSC 900. Research in Human Movement Science. 1-3 Credits.
This course is designed to provide doctoral students within the Human Movement Science Curriculum with academic credit(s) to conduct research under the guidance of a research mentor.
Grading status: Letter grade.

HMSC 911I. Movement and Balance in Aging. 3 Credits.

HMSC 993. Master's Research and Thesis. 3 Credits.

Course work appropriate for the student's area of interest may be taken from a range of departments. The programs listed here are examples, but are not meant to be inclusive: Biomedical Engineering (BMME) (p. 407) and Exercise and Sport Science (EXSS) (p. 407). (Please refer to departmental listings for full course descriptions.)

BMME (Biomedical Engineering)

Graduate-level Courses

BMME 510. Biomaterials. 3 Credits.
Focus on the mechanical, chemical, and biocompatibility considerations of any material (e.g., metal, ceramic, or polymer) designed to interface with the body. Various applications of biomaterials are presented and analyzed, including femoral implants and vascular grafts, in order to guide students in a semester-long design project.
Requisites: Prerequisites, BIOL 101 and BMME 150; corequisites BIOL 252 and 252L.
Grading status: Letter grade.

BMME 565. Biomedical Instrumentation I. 4 Credits.
Graduate students or permission of the instructor. Topics include basic electronic circuit design, analysis of medical instrumentation circuits, physiologic transducers (pressure, flow, bioelectric, temperate, and displacement). This course includes a laboratory where the student builds biomedical devices.
Grading status: Letter grade.

BMME 580. Microcontroller Applications I. 3 Credits.
Introduction to digital computers for real-time processing and control of signals and systems. Programming input and output devices using C and assembly language is stressed. Case studies are used to present software design strategies for real-time laboratory systems.
Requisites: Prerequisites, BIOL 252, BMME 350, and COMP 116 or BMME 201; co-requisite, BMME 351.
Grading status: Letter grade.

EXSS (Exercise and Sport Science)

Graduate-level Courses

EXSS 730. Management of Athletic Injuries. 3 Credits.
Permission of the instructor for nonmajors. Designed to provide basic knowledge and skills that aid in the prevention and treatment of injuries common to athletics.
Grading status: Letter grade.

EXSS 732. Human Anatomy for Athletic Trainers. 4 Credits.
Graduate standing in exercise and sport science or permission of the instructor. The study of gross human anatomy, with emphasis on the functional and clinical aspects of the neck, back, and extremities as related to athletic injuries.
Grading status: Letter grade.

EXSS 735. Sports Medicine Analysis: Special Problems Related to Sports Medicine. 3 Credits.
Permission of the instructor for nonmajors. Problem and research oriented.
Grading status: Letter grade.

EXSS 739. Practicum in Athletic Training. 3 Credits.
Graduate standing in exercise and sport science or permission of the instructor. The implementation of theories and practices in a professional setting under the direction of a competent practitioner.
Grading status: Letter grade.

EXSS 742. Social Issues in Exercise and Sport. 3 Credits.
A comprehensive study of race and gender discrimination, adherence, value development, violence, and other socialization factors in youth, collegiate, and Olympic sport.
Grading status: Letter grade.

EXSS 780. Physiology of Exercise. 3 Credits.
The study of the physical, biochemical, and environmental factors that influence human performance. Emphasis is placed on metabolic, cardiovascular, respiratory, muscular, and endocrine systems. Three hours of lecture and two hours of laboratory per week.
Requisites: Prerequisite, EXSS 276 or 376.
Grading status: Letter grade
Same as: HMSC 702.

EXSS 781. Clinical Exercise Prescription and Testing. 2-3 Credits.
This course concentrates on the knowledge and skills necessary for providing exercise testing and prescription in the clinical setting, emphasizing cardiac rehabilitation.
Requisites: Prerequisite, EXSS 376; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

EXSS 782. Nutritional Aspects of Exercise. 2-3 Credits.
Graduate standing in physical education or permission of the instructor. Exploration of the role of macronutrients and micronutrients as they apply to exercise, physical conditioning, and competition. Students obtain experience in dietary analysis as it applies to athletic populations.
Grading status: Letter grade.

EXSS 783. Assessment of Physiological Functions in Exercise. 3 Credits.
Designed to develop laboratory techniques and experimental design skills as applied to the physiology of human performance.
Requisites: Prerequisite, EXSS 780; Permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

EXSS 785. Seminar in Exercise Physiology. 3 Credits.
Graduate standing in exercise and sport science or permission of the instructor. In-depth study of selected advanced topics in exercise physiology. Emphasis on metabolism, biochemical, and cardiorespiratory physiology, with student presentations on selected topics.
Grading status: Letter grade.

EXSS 890. Special Topics in Exercise and Sport Science. 1-3 Credits.
Graduate standing or permission of the instructor. The study of special topics directed by an authority in the field.
Grading status: Letter grade.

EXSS 990. Research in Exercise and Sport Science. 1-3 Credits.
Graduate standing in exercise and sport science or permission of the instructor. Individually designed research projects conducted by students under the direction of a graduate faculty member.
Grading status: Letter grade.

SCHOOL OF INFORMATION AND LIBRARY SCIENCE (GRAD)

Contact Information

School of Information and Library Science
Visit Program Website (http://sils.unc.edu)

Gary Marchionini, Dean

Ronald Bergquist, Associate Dean for Academic Affairs

The programs of the School of Information and Library Science (SILS) are designed to prepare students for professional employment and advanced study in the fields of information and library science. The school offers graduate instruction leading to the degrees of master of science in information science (M.S.I.S.), master of science in library science (M.S.L.S.), professional science master's degrees (P.S.M.) in digital curation and biomedical and health informatics, post-master's certificate (P.M.C.) in data curation, and doctor of philosophy (Ph.D.) in information and library science. The school also offers an undergraduate major in information science (B.S.I.S.) and an undergraduate minor in information systems. Within these degree programs, students complete a core set of courses and build their own specialized program of studies on this foundation.

The goal of the M.S.I.S. program is to enable students to contribute to the design, development, and maintenance of information systems and networks; lead the development of new technologies and new applications relating to the delivery of information; and demonstrate a theoretical knowledge of information science, including the theory of information storage and retrieval, systems science, and social, political, and ethical implications of information systems.

With an M.S.I.S. degree, students find jobs in areas that include (among others) information system analysis design, development, and support; database design and administration; user experience design (including interface design and usability testing); Web site design and management; social media; information resource and knowledge management; information security; and competitive intelligence.

The goal of the M.S.L.S. program is to help students become leaders in the dynamic world of libraries and information organizations as they change to address 1) the needs of communities that are becoming more diverse, 2) an increasing multiplicity of information formats and technologies, and 3) a global perspective toward knowledge barriers and access. Students should be proficient in the theories and practices used in libraries, archives, and other cultural institutions, including effective communication across differing ethical, cultural, political, social, and emotional perspectives.

Typical job titles for graduates include library director, archives manager, records manager, digital librarian, documents librarian, cataloger, public and reference services librarian, school librarian, acquisitions and collection manager, children's librarian, database administrator, special collections librarian, academic library subject specialist, and systems librarian.

The 48 credit hours of coursework is selected, in consultation with the student's faculty advisor, from the information and library science curriculum or, as appropriate, from related subject fields in other schools and departments of the University or at neighboring universities. A master's paper or project (INLS 992) is also required of each master's student. A theme within the curriculum for both master's degrees is evidence-based practice, which requires students to interpret and apply existing research to their professional situations, as well as to design and conduct their own research where necessary data is not otherwise available.

Graduate certificates within either the M.S.L.S. or the M.S.I.S. are available in the areas of: bioinformatics, clinical information science, digital curation, digital humanities, interdisciplinary health communication, nonprofit leadership, and international development. A program leading to a certificate as a school library media coordinator is also available as part of the M.S.L.S.

The School of Information and Library Science participates in several dual or cooperative degree programs. These include dual-degree programs with:

- the Kenan–Flagler Business School, which combines the master of business administration (M.B.A.) degree and the M.S.I.S. degree
- the Department of Health Policy and Management, Gillings School of Global Public Health, which combines the master of health administration (M.H.A.) degree with either the M.S.L.S. or M.S.I.S.
- the School of Nursing, which combines the master of science in nursing (M.S.N.) with either the M.S.I.S. or M.S.L.S. degree
- the Department of Art, which combines the master of arts in art history (M.A.) with either the M.S.I.S. or M.S.L.S. degree
- the School of Government, which combines the master of public administration (M.P.A.) with either the M.S.I.S. or M.S.L.S. degree
- the School of Law, which combines the juris doctor (J.D.) degree with either the M.S.L.S. or the M.S.I.S degree

A cooperative archival program allows students to combine the master of arts (M.A.) in public history at North Carolina State University with either the M.S.L.S. or the M.S.I.S. Participation in any dual-degree program requires separate admission to both degree programs.

The basic requirement for admission to the master's programs is a bachelor's degree from a recognized college or university. The student's undergraduate work should demonstrate a strong foundation in liberal arts and sciences. Each master's student is required to enter the program with a foundation in the basic technological tools (e.g., HTML, CSS, databases) employed in the field. Applicants must meet the requirements for The Graduate School, which include submission of acceptable scores on the General Test of the Graduate Record Examination (GRE). For details about the entrance requirements and the curriculum for the master's programs, see the program descriptions available on the school's Web site (http://sils.unc.edu/programs).

The master of professional science (P.S.M.) in biomedical and health informatics is an interdisciplinary program that prepares the next generation of health informatics leaders. The degree consists of 35 credits and requires about 1.5 academic years (17 months) of full-time study or 2(+) years of part-time study to complete. There are two tracks: public health informatics and clinical informatics. Students in each program track complete a practicum consisting of an internship in a health care, public health, health research, or health information technology organization that includes a project synthesizing knowledge gleaned from the entire program curriculum.

The professional science master's (P.S.M.) in digital curation is a 31-credit-hour, online degree that focuses on digital curation. A comprehensive, project-oriented curriculum allows students to develop the core skills, knowledge, and competencies for ensuring the longevity, authenticity, discoverability, and usability of digital assets.

The post-master's certificate (P.M.C.) in information and library science is a 30-semester-hour post-master's degree program that is designed for practitioners who seek an articulated and systematic continuing education program to enhance their professional career development in information and library science. The school currently offers a specialized P.M.C. in data curation.

The doctor of philosophy (Ph.D.) in health informatics is a 55-credit, interdisciplinary program that emphasizes advanced database management, analytics methods and evaluation, and human-computer interactions in health informatics.

The doctor of philosophy in information and library science (Ph.D.) is a research degree. Thus, the purpose of the doctoral program in SILS is to educate scholars who are capable of addressing problems of scholarly consequence in the field of information and library science. Each student will develop a program of studies that is tailored to individual interests and career goals. Required classes include a yearlong seminar on research issues and questions (INLS 881/INLS 882) and completion of an appropriate sequence of courses in statistics. Additional courses in research methods and theory development are recommended, as are research experience and substantive content courses that are related to a student's research interests. There are also opportunities for students to develop teaching skills through both coursework and teaching experience.

The school is located in Manning Hall, which houses: classrooms as well as the administrative and faculty offices; Widernet (http://widernet.unc.edu), a program that aims to improve digital communications to all communities and individuals around the world in need of educational resources, knowledge and training; ibiblio.org (http://ibiblio.org), one of the most popular Web sites on the Internet; and the Information and Technology Resource Center (ITRC). The ITRC includes the Information and Library Science Library, which holds more than 100,000 volumes, and computer labs. Those interested in any of the SILS degree programs should consult the SILS Web site (http://sils.unc.edu) or request information from the School of Information and Library Science, CB #3360, 100 Manning Hall, The University of North Carolina at Chapel Hill, Chapel Hill, N.C. 27599-3360. Email: info@ils.unc.edu. (info@ils.unc.edu)

Professors

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Sandra Hughes-Hassell
Christopher (Cal) Lee
Gary J. Marchionini, Cary C. Boshamer Distinguished Professor
Javed Mostafa
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Clinical Associate Professor

Cliff Missen

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Ronald Bergquist

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Sarah Arnold
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Samantha Kaplan
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Julie Kimbrough

Emily King
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Geraldine Larson
Adam Lee
Heather Maneiro
Brian Moynihan
Andreas Orphanides, North Carolina State University
Annie Peterson
Emily Pfaff
Rob Ross
Nicky Sexton
Erik Scott
Grace Shin
Jacqueline Solis
Ryan Urquhart, BCBS NC
Rebecca Vargha
Meredith Weiss, Virginia Commonwealth University
Steven Weiss

NOTE: The prefix, or subject code, for all School of Information and Library Science courses is INLS. When a prerequisite is listed for a course, it may be assumed that an equivalent course taken elsewhere or permission of the instructor also fulfills the prerequisite or corequisite. The course instructor must approve the equivalency of the substitute course. Although graduate students may take courses numbered below 400, they will not receive credit toward a graduate degree for those courses.

INLS

Advanced Undergraduate and Graduate-level Courses

INLS 418. Human Factors in System Design. 3 Credits.
Design, implementation, and evaluation of interfaces for computer systems. User-based techniques, usability issues, and human factors.
Requisites: Prerequisite, INLS 382.
Grading status: Letter grade.

INLS 465. Understanding Information Technology for Managing Digital Collections. 3 Credits.
Prepares students to be conversant with information technologies that underlie digital collections in order to evaluate the work of developers, delegate tasks, write requests for proposals, and establish policies and procedures. Teaches students how to think about information technology systems and recognize and manage interdependencies between parts of the systems.
Grading status: Letter grade.

INLS 490. Selected Topics. 1-3 Credits.
Exploration of an introductory-level special topic not otherwise covered in the curriculum. Previous offerings of these courses do not predict their future availability; new courses may replace these.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

INLS 493. Professional Field Experience. 1 Credit.
Second field experience course to be offered to coincide with the student's information science project in a local organization. Enrollment restricted to IS majors and minors; Instructor permission required.
Requisites: Prerequisite, INLS 393.
Grading status: Pass/Fail.

INLS 500. Human Information Interactions. 3 Credits.
The behavioral and cognitive activities of those who interact with information, with emphasis on the role of information mediators. How information needs are recognized and resolved; use and dissemination of information.
Requisites: Prerequisite, INLS 203 or graduate standing.
Grading status: Letter grade.

INLS 501. Information Resources and Services. 3 Credits.
Analysis, use, and evaluation of information and reference systems, services, and tools for both printed and electronic delivery. Provides a foundation in electronic information search techniques, question negotiation, interviewing, and instruction.
Grading status: Letter grade.

INLS 502. User Education. 3 Credits.
Examines the history and context of LIS training programs. Pedagogy, teaching skills, methods of evaluation are addressed. Students may tailor learning projects to their own interests.
Requisites: Prerequisite, INLS 501; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

INLS 503. Communication Skills for Information Professionals. 3 Credits.
Through individual presentations, group exercises, and performance-centered feedback, this course seeks to improve students' ability to communicate their ideas clearly and present themselves positively in a professional setting.
Grading status: Letter grade.

INLS 509. Information Retrieval. 3 Credits.
Study of information retrieval and question answering techniques, including document classification, retrieval and evaluation techniques, handling of large data collections, and the use of feedback.
Grading status: Letter grade
Same as: COMP 487.

INLS 512. Applications of Natural Language Processing. 3 Credits.
Study of applications of natural language processing techniques and the representations and processes needed to support them. Topics include interfaces, text retrieval, machine translation, speech processing, and text generation.
Requisites: Prerequisite, COMP 110, 116, or 410.
Grading status: Letter grade
Same as: COMP 486.

INLS 513. Resource Selection and Evaluation. 3 Credits.
Identification, provision, and evaluation of resources to meet primary needs of clientele in different institutional environments.
Grading status: Letter grade.

INLS 515. Consumer Health Information. 3 Credits.
Examines concepts of health, health conditions, policy, and information collections and services from social and cultural perspectives. Analysis and design for provision and access to consumer health information services.
Grading status: Letter grade.

INLS 520. Organization of Information. 3 Credits.
Introduction to the problems and methods of organizing information, including information structures, knowledge schemata, data structures, terminological control, index language functions, and implications for searching.
Grading status: Letter grade.

INLS 523. Introduction to Database Concepts and Applications. 3 Credits.
Design and implementation of basic database systems. Semantic modeling, relational database theory, including normalization, indexing, and query construction, SQL.
Requisites: Pre- or corequisite, INLS 161.
Grading status: Letter grade.

INLS 525. Electronic Records Management. 3 Credits.
Explores relationships between new information and communication technologies and organizational efforts to define, identify, control, manage, and preserve records. Considers the importance of organizational, institutional and technological factors in determining appropriate recordkeeping strategies.
Grading status: Letter grade.

INLS 530. Young Adult Literature and Related Materials. 3 Credits.
A survey of print and nonprint library materials particularly suited to the needs of adolescents.
Grading status: Letter grade.

INLS 534. Youth and Technology in Libraries. 3 Credits.
This course encourages students to explore the array of technologies available to children and adolescents, the issues surrounding the use of technology, the role of care givers, and potential impacts on development.
Grading status: Letter grade.

INLS 539. Going the Last Mile: Information Access for Underserved Populations. 3 Credits.
In this course we investigate the special challenges of providing information services to marginalized populations in an increasingly digital world.
Grading status: Letter grade.

INLS 540. Building a Personal Digital Library. 3 Credits.
Students will implement a personal digital LifeTime Library. Topics include creation of a personal digital library, organization of the material, creation of descriptive metadata, management, and sharing of the collection.
Grading status: Letter grade.

INLS 541. Information Visualization. 3 Credits.
An introduction to information visualization through reading current literature and studying exemplars. The course reviews information visualization techniques, provides a framework for identifying the need for information visualization, and emphasizes interactive electronic visualizations that use freely available tools. Students will construct several visualizations. No programming skills are required.
Grading status: Letter grade.

INLS 550. History of the Book and Other Information Formats. 3 Credits.
The history of the origin and development of the book in all its formats: clay tablets to electronic. Coverage includes scientific and other scholarly publications, religious works, popular literature, periodicals, and newspapers.
Grading status: Letter grade.

INLS 551. History of Libraries and Other Information-Related Cultural Institutions. 3 Credits.
The history of cultural institutions related to information from earliest times to the present day. Includes specific institutions, trends in service and facilities, and individuals important in the development of these institutions.
Grading status: Letter grade.

INLS 554. Cultural Institutions. 3 Credits.
This course will explore cultural institutions--libraries, museums, parks, zoological and botanical gardens, reconstructions and other settings--as lifelong educational environments.
Grading status: Letter grade.

INLS 556. Introduction to Archives and Records Management. 3 Credits.
Survey of the principles, techniques, and issues in the acquisition, management, and administration of records, manuscripts, archives, and other cultural and documentary resources in paper, electronic, and other media formats.
Grading status: Letter grade.

INLS 558. Principles and Techniques of Storytelling. 3 Credits.
An overview of storytelling, its historical development, and the presentation and administration of storytelling programs. The class focuses on performance skills merged with theoretical issues.
Grading status: Letter grade.

INLS 560. Programming for Information Science. 3 Credits.
Introduction to programming and computational concepts. Students will learn to write programs using constructs such as iteration, flow control, variables, functions, and error handling. No programming experience required.
Grading status: Letter grade.

INLS 561. Digital Forensics for Curation of Digital Collections. 3 Credits.
Students will learn about hardware, software, principles, and methods for capturing and curating digital data that have been stored on removable media (i.e., hard drives, floppy disks, USB memory sticks).
Grading status: Letter grade.

INLS 570. Intermediate Programming and Data Analysis. 3 Credits.
Intermediate programming concepts in information processing and data analysis. Students will learn object-oriented programming, data structures, data analysis methods, and information processing techniques in the context of information science topics.
Requisites: Prerequisite, COMP 110, COMP 116, or INLS 560, or equivalent course.
Grading status: Letter grade.

INLS 572. Web Development I. 1.5 Credit.
Introduction to Internet history, architecture, and applications. Introduces design principles for creating usable and accessible Web sites. Develops technical skills and understanding of standards.
Requisites: Prerequisite, INLS 161.
Grading status: Letter grade.

INLS 573. Mobile Web Development. 1.5 Credit.
An introduction to techniques and technologies for the development of mobile Web sites and their applications.
Requisites: Prerequisite, INLS 161.
Grading status: Letter grade.

INLS 576. Distributed Systems and Administration. 3 Credits.
Distributed and client/server-based computing. Includes operating system basics, security concerns, and issues and trends in network administration.
Requisites: Prerequisite, INLS 161 or 461.
Grading status: Letter grade.

INLS 578. Protocols and Network Management. 3 Credits.
Network protocols and protocol stacks. Included are discussions of protocol classes, packet filtering, address filtering, network management, and hardware such as protocol analyzers, repeaters, routers, and bridges.
Requisites: Prerequisite, INLS 161 or 461.
Grading status: Letter grade.

INLS 581. Research Methods Overview. 3 Credits.
An introduction to research methods used in information and library science, exploring the design, interpretation, analysis, and application of published research.
Grading status: Letter grade.

INLS 582. Systems Analysis. 3 Credits.
Introduction to the systems approach to the design and development of information systems. Methods and tools for the analysis and modeling of system functionality (e.g., structured analysis) and data represented in the system (e.g., object-oriented analysis) are studied.
Requisites: Prerequisite, INLS 382 or graduate standing.
Grading status: Letter grade.

INLS 584. Information Ethics. 3 Credits.
An overview of ethical reasoning, followed by discussion of issues most salient to information professionals, e.g., intellectual property, privacy, access/censorship, effects of computerization, and ethical codes of conduct.
Grading status: Letter grade.

INLS 585. Management for Information Professionals. 3 Credits.
Introduction to management principles and practices for information professionals working in all types of organizations. Topics include planning, budgeting, organizational theory, staffing, leadership, organizational change and evaluation, and decision making.
Grading status: Letter grade.

INLS 586. Project Management. 1.5 Credit.
Strategies and skills needed to effectively manage projects, integrating project management theory with best practices in different organizational perspectives. Individual and team assignments include readings and case studies.
Grading status: Letter grade.

INLS 609. Experimental Information Retrieval. 3 Credits.
This course takes an in-depth look at experimental information retrieval systems that focus on different search tasks and are evaluated in community-wide evaluation forums such as TREC and INEX.
Requisites: Prerequisite, INLS 509.
Grading status: Letter grade.

INLS 613. Text Mining. 3 Credits.
This course will allow the student to develop a general understanding of knowledge discovery and gain a specific understanding of text mining. Students will become familiar with both the theoretical and practical aspects of text mining and develop a proficiency with data modeling text.
Grading status: Letter grade.

INLS 620. Web Information Organization. 3 Credits.
Similar programming background needed. Understand the Web as a platform for information organizing systems. Learn how the Web has been designed to be a service platform, data publishing platform, and application platform.
Requisites: Prerequisites, INLS 520 or 560.
Grading status: Letter grade.

INLS 621. Personal Information Management. 3 Credits.
This course focuses on issues in personal information management research and practice, including information organization, human cognition and memory, task continuity across devices, preservation, and the role of technology in personal information management.
Grading status: Letter grade.

INLS 623. Database Systems II: Intermediate Databases. 3 Credits.
Intermediate-level design and implementation of database systems, building on topics studied in INLS 523. Additional topics include MySQL, indexing, XML, and nontext databases.
Requisites: Prerequisites, INLS 382 or 582, and 523.
Grading status: Letter grade.

INLS 624. Policy-Based Data Management. 3 Credits.
Students will develop policies for managing digital repositories and persistent archives. The rules will be implemented in the integrated Rule-Oriented Data System (iRODS), which organizes and distributes data into shareable collections.
Requisites: Prerequisite, INLS 461 or COMP 110 or 116.
Grading status: Letter grade.

INLS 625. Information Analytics. 3 Credits.
This course introduces analytical techniques to deal with very large data sets. Students will become familiar with predictive modeling, clustering, data mining, and paradigms such as map resource.
Requisites: Prerequisite, INLS 560; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

INLS 626. Introduction to Big Data and NoSQL. 1.5 Credit.
Information is being generated at an exponential scale in many areas, from astronomy to social networking and e-marketing. Processes for handling these data are data intensive, require heavy read/write workloads, and do not need the stringent ACID properties of relational databases. Several specific systems will be studied as examples.
Requisites: Prerequisite, INLS 523.
Grading status: Letter grade.

INLS 641. Visual Analytics. 3 Credits.
This project-based course provides an overview of visual analytics. Material includes foundational concepts and theories, seminal and recent research in the field, and hands-on experience with commonly used technologies. Programming experience strongly recommended.
Grading status: Letter grade.

INLS 651. Audio-Visual Archives Management. 1.5 Credit.
An introduction to the management of audio, film, and video archives with an emphasis on the history of recording, best practices for preservation and access, and copyright. Through selected readings, lecture, class discussion, assignment, and hands-on demonstration, students will gain an understanding of the history of recording, format identification, storage and handling, philosophy of media preservation, and copyright.
Grading status: Letter grade.

INLS 660. Social Media and Society: A Theoretical and Empirical Overview. 3 Credits.
Explores the evolution, implications, and complications of social media in multiple spheres of life including sociality, community, politics, power and inequality, education, and information from theoretical and empirical perspectives.
Grading status: Letter grade.

INLS 672. Web Development II. 3 Credits.
Study of design and implementation of applications using both client and server side configuration and programming. Example topics include PHP, ruby on Rails, and Javascript.
Requisites: Prerequisite, INLS 572.
Grading status: Letter grade.

INLS 685. Project Management: Strategy and Applications. 3 Credits.
This course is a broad introduction to project management principles, tools, and strategies intended for use in a variety of applications. Key topics include project planning tools, project process groups, risk assessment, budgeting/cost estimation, and team management. Through the use of readings, videos, assignments, and forum discussions, students will have the opportunity to demonstrate knowledge and understanding of the strategy behind successful project management and problem resolution.
Grading status: Letter grade.

INLS 690. Intermediate Selected Topics. 1-3 Credits.
Exploration of a special topic not otherwise covered in the curriculum, at an intermediate level. Previous offering of this course does not predict future availability; new courses may replace these. Topic varies by instructor.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

INLS 691H. Research Methods in Information Science. 3 Credits.
Senior standing and permission of the instructor. Restricted to information science majors. An introduction to research methods used in information science. Includes the writing of a research proposal.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

INLS 692H. Honors Thesis in Information Science. 3 Credits.
Senior standing and permission of the instructor. Restricted to information science majors Students in the SILS undergraduate honors program engage in independent research and write an honors thesis reporting the research under the supervision of a faculty member.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

INLS 696. Study in Information and Library Science. 1-3 Credits.
Study by an individual student on a special topic under the direction of a specific faculty member. Six credit maximum for master's students. Graduate faculty.
Requisites: Prerequisite, permission of the instructor.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

INLS 697. Information Science Capstone. 3 Credits.
Senior standing required. Information science major or minor. Contemporary topics of information science, information systems, information technology, information design, and information management. Assessment of future impact of new developments.
Grading status: Letter grade.

Graduate-level Courses

INLS 700. Scholarly Communication. 1.5 Credit.
Addresses how scholars approach academic work; social relationships within academia; external stakeholders in the scholarly communication system; and emerging technologies' impact upon work practices. Intended for students interested in academic libraries or digital collections of scholarly materials, and/or conducting research on scholarly communication.
Requisites: Prerequisite, INLS 500 or permission of instructor.
Grading status: Letter grade.

INLS 701. Information Retrieval Search Strategies. 3 Credits.
Investigates information retrieval techniques and strategies from the world of electronic information sources, including commercial and Internet databases and search engines. Data analysis, marketing, and end-user products and services are explored.
Requisites: Prerequisite, INLS 501 or INLS 509.
Grading status: Letter grade.

INLS 702. Social Science Information. 1.5 Credit.
Survey of information and its needs in the social sciences, with an emphasis on information use and search strategies and on information resources.
Requisites: Prerequisite, INLS 501.
Grading status: Letter grade.

INLS 703. Science Information. 3 Credits.
Survey of the communication of scientific information and the information sources in the physical and biological sciences; emphasis on major bibliographic and fact sources, including online reference services.
Requisites: Prerequisite, INLS 501.
Grading status: Letter grade.

INLS 704. Humanities Information. 1.5 Credit.
Survey of information and its needs in the humanities, with an emphasis on information use and search strategies and on reference and other information resources.
Requisites: Prerequisite, INLS 501.
Grading status: Letter grade.

INLS 705. Health Sciences Information. 3 Credits.
A survey of information used in the health sciences disciplines and professions. The organization of sources, current techniques, and tools for its control, including online databases.
Requisites: Prerequisite, INLS 501.
Grading status: Letter grade.

INLS 706. Biomedical Informatics Research Review. 1.5 Credit.
Develops understanding of information/library science research issues related to biomedical and health informatics through the review of journal articles, invited talks, and critical group discussions.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

INLS 707. Government Information. 3 Credits.
A survey of information and data sources from all levels of U.S. government, and international bodies. Primary focus on strategies for finding information; secondary, collection management, role of librarians, etc.
Grading status: Letter grade.

INLS 708. Law Libraries and Legal Information. 3 Credits.
An introduction to the legal system and the development of law libraries, their unique objectives, characteristics, and functions. The literature of Anglo-American jurisprudence and computerized legal research are emphasized, as well as research techniques.
Requisites: Prerequisite, INLS 501.
Grading status: Letter grade.

INLS 709. Business Information. 3 Credits.
Combines an introduction to basic business concepts and vocabulary with consideration of current issues in business librarianship and of key print and electronic information sources.
Requisites: Prerequisite, INLS 501.
Grading status: Letter grade.

INLS 710. Evidence-Based Medicine. 3 Credits.
An introduction to the process of evidence-based medicine (EBM) including question building, searching, and critical appraisal of studies and to the supporting roles and opportunities for medical librarians.
Grading status: Letter grade.

INLS 711. Disaster Planning for Libraries. 1.5 Credit.
Disasters can come in a variety of forms (e.g. hurricanes, floods, fires, tornadoes, etc.) and strike at any time. Preparedness, prevention, and planning are all critical components of effective disaster responsiveness. In this course, students will learn about disaster prevention, recovery, training, and outreach as they apply to the library setting.
Grading status: Letter grade.

INLS 712. Introduction to Text Mining. 1.5 Credit.
Changes in technology and publishing practices have eased the task of recording and sharing textual information electronically. This increased quantity of information has spurred the development of a new field called text mining. The overarching goal of this new field is to use computers to automatically learn new things from textual data. Throughout the course, a strong emphasis will be placed on evaluation. Students will develop a deep understanding of one particular method through a course project.
Grading status: Letter grade.

INLS 714. Introduction to Information Analytics. 1.5 Credit.
The data explosion experienced by computerization of every aspect of our lives from social media to internet of things requires a deeper look at information analytics. The course introduces proven and emerging analytical techniques that can be used to deal with mountains of mostly unstructured data. We will look at several analytical paradigms from Predictive Modeling to Data Mining, Text Analytics to Web Analytics, Statistical Analysis to novel paradigms in Map Reduce and Storm.
Grading status: Letter grade.

INLS 718. User Interface Design. 3 Credits.
Basic principles for designing the human interface to information systems, emphasizing computer-assisted systems. Major topics: users' conceptual models of systems, human information processing capabilities, styles of interfaces, evaluation methods.
Requisites: Prerequisite, INLS 582.
Grading status: Letter grade.

INLS 719. Usability Testing and Evaluation. 3 Credits.
This course will introduce central concepts in usability engineering, testing and evaluation including: UX lifecycle, contextual inquiry, formal and informal evaluation techniques, measures, metrics, qualitative and qualitative analysis, evaluation reporting.
Requisites: Prerequisites, INLS 382 or INLS 582.
Grading status: Letter grade.

INLS 720. Metadata Architectures and Applications. 3 Credits.
Examines metadata in digital environment. Emphasizes the development and implementation of metadata schemas in distinct information communities and the standards and technological applications used to create machine understandable metadata.
Requisites: Prerequisite, INLS 509 or 520.
Grading status: Letter grade.

INLS 721. Cataloging Theory and Practice. 3 Credits.
Covers principles, practices, and future trends for cataloging library resources. Topics include RDA/AACR2, MARC, authority control, subject analysis, classification, and cataloging of print, nonprint, and digital resources.
Requisites: Pre- or corequisite, INLS 520.
Grading status: Letter grade.

INLS 722. Introduction to Metadata Architectures and Applications. 1.5 Credit.
Examines fundamental concepts central to structured metadata implementations and surveys the many types of standards that attempt to harmonize description and enable interoperable systems. The course situates the challenge of implementing standards for interoperable data within the messy reality of persistent interpretive diversity. Students cannot receive credit for both INLS 722 and INLS 720.
Grading status: Letter grade.

INLS 723. Database Systems III: Advanced Databases. 3 Credits.
Advanced study of database systems. Topics include database design, administration, current issues in development and use, optimization, indexing, transactions, and database programming.
Requisites: Prerequisite, INLS 623.
Grading status: Letter grade.

INLS 725. Electronic Health Records. 3 Credits.
Focuses on EHR data standards with emphasis on data management requirements, applications, and services. Course includes HL7, CCHIT, and CDISC standards. For data management specialists, administrators, and health data analysts.
Grading status: Letter grade.

INLS 728. Seminar in Knowledge Organization. 3 Credits.
Explores theoretical foundations, historical approaches, and current practices for organizing knowledge. Covers general terminological and classificatory systems, domain semantic systems, and research.
Requisites: Prerequisite, INLS 509 or 520; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

INLS 732. Children's Literature and Related Materials. 3 Credits.
Survey of literature and related materials for children with emphasis on 20th-century authors and illustrators.
Grading status: Letter grade.

INLS 733. Administration of Public Library Work with Children and Young Adults. 3 Credits.
Objectives and organization of public library services for children and young adults; designed for those who may work directly with young people or who intend to work in public libraries.
Grading status: Letter grade.

INLS 735. Youth Services in a Diverse Society. 3 Credits.
The purpose of this course is to prepare students to work as youth services librarians in today's increasingly diverse society. The course includes a 30-hour service learning component.
Grading status: Letter grade.

INLS 737. Inclusive Information Services for Diverse Populations. 3 Credits.
This course will prepare students to work as ILS professionals in today's increasingly diverse society. Students will develop a theoretical base in critical race theory (CRT) and other cross-disciplinary theories.
Grading status: Letter grade.

INLS 739. Information Services and Specific Populations. 3 Credits.
Service, professional, and administrative issues related to information access by nontraditional information service users. The course examines trends, public policy, ethical issues, programming, and evaluation of services.
Grading status: Letter grade.

INLS 740. Digital Libraries: Principles and Applications. 3 Credits.
Research and development issues in digital libraries including: collection development and digitization, mixed mode holdings; access strategies and interfaces, metadata and interoperability, economic and social policies, and management and evaluation.
Grading status: Letter grade.

INLS 746. Music Librarianship. 3 Credits.
Survey of the history and practice of music librarianship, with an emphasis on administration, collection development, and public service in academic and large public libraries.
Grading status: Letter grade.

INLS 747. Special Libraries and Knowledge Management. 3 Credits.
Professional competencies required to work as a special librarian or knowledge manager in a corporate or nonprofit setting. Strategic planning. Organizational dynamics. Tailoring services. Intranet design. Value-added measures. Intellectual capital.
Requisites: Prerequisite, INLS 585.
Grading status: Letter grade.

INLS 748. Health Sciences Environment. 3 Credits.
Trends in health care delivery, biomedical research and health sciences education, with emphasis on the impact and use of information. Includes observation of clinical and research settings.
Requisites: Prerequisite, INLS 501 or 585; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

INLS 749. Art and Visual Information Management. 3 Credits.
A survey of the history and practice of art and visual resources librarianship/curatorship, with an emphasis on administration, collection development, copyright practices, digital resource management, and public service.
Requisites: Prerequisite, INLS 520.
Grading status: Letter grade.

INLS 750. Introduction to Digital Curation. 3 Credits.
Introduces students to digital curation; focusing best practices for the creation, selection, storage, provision, and long-term preservation of digital entities. Discusses the digital/data curation life cycles and identifies the activities associated with each stage and their social, legal, ethical, and policy implications.
Grading status: Letter grade.

INLS 751. Advanced Digital Curation. 3 Credits.
Continuing from "Introduction to Digital Curation," this course further explores emerging best practices, standards, and new tools and workflows for the full range of life cycle activities including but are not limited to: digitization technologies; ingest; standards and quality control; storage; preservation workflows; digital asset management; and metadata. It engages students with research data management, data management plans, data curation profiles, policy issues, content sharing, and grant writing.
Requisites: Prerequisite, INLS 750.
Grading status: Letter grade.

INLS 752. Digital Preservation and Access. 3 Credits.
Focuses on best practices for the creation, provision, and long-term preservation of digital entities. Topics include digitization technologies; standards and quality control; digital asset management; grant writing; and metadata.
Grading status: Letter grade.

INLS 753. Preservation of Library and Archive Materials. 3 Credits.
An introduction to current practices, issues, and trends in the preservation of materials for libraries and archives, with an emphasis on integrating preservation throughout an institution's operations.
Grading status: Letter grade.

INLS 754. Access. Outreach, and Public Service in Cultural Heritage Repositories. 3 Credits.
Explores user needs, information seeking behaviors, and provision of access to primary source materials in archives, manuscript repositories, and museums. User education and outreach are major foci.
Requisites: Prerequisite, INLS 501.
Grading status: Letter grade.

INLS 755. Archival Appraisal. 3 Credits.
Explores history, theories, techniques, and methods that archivists use to identify documents andother materials of enduring value for lone-term preservation.
Requisites: Prerequisite, INLS 556.
Grading status: Letter grade.

INLS 756. Data Curation and Management. 3 Credits.
Explores data curation lifecycle activities from design of good data, through content creator management, metadata creation, ingest into a repository, repository management, access policies and implementation, and data reuse.
Grading status: Letter grade.

INLS 757. Principles and Practices in Archival Description. 3 Credits.
Recommended preparation, INLS 520. Explores the history, principles, development, and use of archival description with a focus on EAD and MARC structures. Presents authority and subject analysis work and description for special formats.
Requisites: Prerequisite, INLS 556.
Grading status: Letter grade.

INLS 758. International and Cross-Cultural Perspectives for Information Management. 3 Credits.
Examines information in society for selected nations/cultures. Compares institutions, processes, and trends in the globalization of information management in the face of barriers of language and culture.
Grading status: Letter grade.

INLS 760. Web Databases. 3 Credits.
Programming experience required. Explores concepts and practice surrounding the implementation and delivery of Web-enabled databases. Students will gain experience with and evaluate PC and Unix Web database platforms.
Requisites: Prerequisites, INLS 572 and 623.
Grading status: Letter grade.

INLS 762. Internet Issues and Future Initiatives. 3 Credits.
Members of this seminar discuss emerging Internet policy issues such as copyright, intellectual property, privacy, and security. Participants will also explore emerging Internet tools and applications.
Requisites: Prerequisite, INLS 572.
Grading status: Letter grade.

INLS 765. Information Technology Foundations for Managing Digital Collections. 1.5 Credit.
Prepares students to be conversant with information technologies that underlie digital collections in order to evaluate the work of developers, delegate tasks, write requests for proposals, and establish policies and procedures.
Grading status: Letter grade.

INLS 766. Audit and Certification of Trustworthy Digital Repositories. 1.5 Credit.
This course will address international standards for repository design and audit; risk assessment and mitigation; repository audit and certification tools and processes; criteria for trustworthiness; and the development of specific workflows to support trustworthy digital curation functions. It is also the first step in preparing for repository self-audits and the Trustworthy Digital Repository Auditor's credential to become an auditor of trustworthy digital repositories (ISO 16363).
Grading status: Letter grade.

INLS 767. Information Assurance. 3 Credits.
Information assurance is a broader concept than (computerized) information security. It deals with aspects of data integrity, privacy, paper and human security issues, and security from several perspectives: legal issues, technical tools and methods, social and ethical concerns, and organization's policies and procedures, and standards. Previously offered as INLS 566.
Grading status: Letter grade.

INLS 770. Health Informatics Seminar. 1 Credit.
This series explores key areas in Health Informatics and includes research results, overview of programs of research, and evaluative projects. Speakers with extensive informatics experiences and knowledge from both academia and industry are invited to present.
Repeat rules: May be repeated for credit. 6 total credits. 6 total completions.
Grading status: Letter grade.

INLS 781. Proposal Development. 1.5 Credit.
Development of a proposal for the master's paper/project/portfolio.
Requisites: Prerequisite, INLS 581.
Grading status: Letter grade.

INLS 782. Library Assessment. 3 Credits.
Addresses evaluation and assessment activities in libraries. Existing tools for evaluation library operations will be considered. Students will design and conduct their own evaluation of one or more library operations.
Requisites: Prerequisite, INLS 581.
Grading status: Letter grade.

INLS 783. Library Instruction & Pedagogy. 3 Credits.
Examines the role of school, public, and academic librarians in providing instruction. Pedagogy, learning theories, information literacy standards and curricula, and assessment methods are addressed.
Grading status: Letter grade.

INLS 785. Human Resources Management. 3 Credits.
An in-depth look at the management of human resources in libraries and other information agencies. Includes topics such as recruitment, hiring, job analysis, performance appraisal, training, and compensation.
Requisites: Prerequisite, INLS 585.
Grading status: Letter grade.

INLS 786. Marketing of Information Services. 3 Credits.
Application of marketing theory to libraries and other information settings. Includes consumer behavior, market research, segmentation, targeting and positioning, public relations, product design, and sales promotion.
Grading status: Letter grade.

INLS 787. Legal Issues for Librarians. 3 Credits.
Students will learn to read/analyze legal materials, identify major legal issues and legal regulations governing librarians, and use legal information to create policies and guide best practice in particular institutions.
Grading status: Letter grade.

INLS 789. Big Data, Algorithms and Society. 3 Credits.
This course examines the effect of big data on politics and the public sphere, how social media affects social movements, and the privacy and security vulnerabilities exposed by the coming Internet of Things. There can be potential negative societal consequences of social media and big data; this course studies the realities of the intersection of big data, algorithmic manipulation of data, and societal understanding of them.
Grading status: Letter grade.

INLS 793. Health Informatics Practicum. 3 Credits.
Expand classroom learning to include hands-on experience in Health IT, in the context of a particular industry sector.
Grading status: Letter grade.

INLS 794. Digital Curation Internship. 4 Credits.
Permission of Instructor. PSM Internship in Digital Curation is a planned, individualized, mentored, evaluated, experiential learning opportunity that serves as a bridge between academic training and non-academic practice.
Grading status: Letter grade.

INLS 795. Supervised Field Experience. 3 Credits.
Required preparation, completion of 18 semester hours. Permission of the instructor. Supervised observation and practice in an information service agency or library. The student will work a required amount of time under the supervision of an information/library professional and participate in faculty-led discussions for ongoing evaluation of the practical experience.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

INLS 796. Field Experience in School Library Media. 3 Credits.
Required preparation, completion of at least 21 semester hours, including INLS 744 and INLS 754. Permission of the instructor. Supervised observation and practice in a school library media center. Faculty-led seminars, reflection journals, and on-site faculty observations enhance the experience.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

INLS 800. Seminar Series in Digital Curation. 1.5 Credit.
This course will provide brief introductions to materials that do not otherwise fit into the 31 credit format of the PSM in Digital Curation degree. This course will cover established topics but also late-breaking developments so as to keep students up-to-date with changes in tools, practices, and standards. A lecture or interview with a digital curation expert will be posted biweekly.
Grading status: Letter grade.

INLS 818. Seminar in Human-Computer Interaction. 3 Credits.
Research and development in design and evaluation of user interfaces that support information seeking. Major topics: interactivity, needs assessment, query and browser interactions, interactive design and maintenance, usability testing.
Requisites: Prerequisite, INLS 718; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

INLS 841. Seminar in Academic Libraries. 3 Credits.
Study of problems in the organization and administration of college and university libraries with emphasis on current issues in personnel, finance, governance, and services.
Requisites: Prerequisite, INLS 585.
Grading status: Letter grade.

INLS 842. Seminar in Popular Materials in Libraries. 3 Credits.
Selected topics relating to the roles of various types of libraries in the provision and preservation of popular materials (light romances, science fiction, comic books, etc.) existing in various forms (print, recorded sound, etc.).
Grading status: Letter grade.

INLS 843. Seminar in Public Libraries. 3 Credits.
Required preparation, completion of 12 semester hours. Selected topics in public library services, systems, networks, and their management. Current issues are emphasized, along with the interests of the participants.
Grading status: Letter grade.

INLS 857. Seminar in Rare Book Collections. 3 Credits.
A study of the nature and importance of rare book collections; problems of acquisition, organization, and service.
Grading status: Letter grade.

INLS 873. Research Practicum. 1-3 Credits.
Doctoral students will work on faculty-sponsored or off-site research projects to gain foundational research skills. Students may be involved in research design, data collection, data analysis, or other research-related activities
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 6 total completions.
Grading status: Letter grade.

INLS 881. Research Issues and Questions I. 3 Credits.
Doctoral standing or permission of the instructor. Intensive and systematic investigation of the fundamental ideas in information and library science. Exploration and discussion in seminar format. Must be taken in fall semester followed by INLS 882 in spring.
Grading status: Letter grade.

INLS 882. Research Issues and Questions II. 3 Credits.
Doctoral standing or permission of the instructor. Intensive and systematic investigation of the fundamental ideas in information and library science. Exploration and discussion in seminar format. Must be taken in the spring semester immediately after INLS 881 (offered fall only).
Grading status: Letter grade.

INLS 883. Research Colloquium. 1 Credit.
Doctoral standing required. Presentation and discussion of research issues, questions, methods, analytical approaches by students, faculty, or visitors.
Grading status: Letter grade.

INLS 884. Seminar in Research Methodology. 3 Credits.
Required preparation, doctoral standing or INLS 780 for Master's students. Permission of the instructor for students lacking this preparation. Exploration of topics related to research design and methodology in information and library science.
Grading status: Letter grade.

INLS 886. Graduate Teaching Practicum. 1-3 Credits.
Permission of the instructor. Doctoral students will observe and work with faculty in the classroom to gain foundational teaching skills. Students may practice designing a class session or exercise, leading a class, and/or grading.
Repeat rules: May be repeated for credit. 3 total credits. 2 total completions.
Grading status: Letter grade.

INLS 887. Seminar in Theory Development. 3 Credits.
Doctoral or advanced master's standing required. Discussion and critique of the structural components and processes utilized in theory development. Seminar provides knowledge relating to the various stages of theory building.
Grading status: Letter grade.

INLS 888. Seminar in Teaching and Academic Life. 3 Credits.
Doctoral student or advanced master's standing required. Examines teaching, research, publication, and service responsibilities. Provides perspective on professional graduate education and LIS educational programs. Explores changing curricula and discusses ethics, rewards, and problems of academic life.
Grading status: Letter grade.

INLS 889. Seminar in Teaching Practice. 1 Credit.
Doctoral standing required. For doctoral students currently involved in teaching activities, these regular seminar meetings are designed to discuss relevant literature and aspects of the teaching experience.
Requisites: Pre- or corequisite, INLS 888.
Grading status: Letter grade.

INLS 890. Advanced Special Topics. 1-6 Credits.
Exploration of an advanced special topic not otherwise covered in the curriculum. Previous offering of these courses does not predict their future availability; new courses may replace these.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

INLS 988. Research in Information and Library Science. 1-6 Credits.
Permission of the instructor. Supports individual and small group research undertaken by doctoral students in information and library science intended to produce research results of publishable quality.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

INLS 992. Master's (Non-Thesis). 3 Credits.
Provides a culminating experience for master's degree students, who engage in independent research or project effort and develop a major paper reporting the research or project under the supervision of a faculty member.
Repeat rules: May be repeated for credit.

INLS 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF LINGUISTICS (GRAD)

Contact Information

Department of Linguistics
Visit Program Website (https://linguistics.unc.edu)
104A Smith Building, CB# 3155
(919) 962-1192

Misha Becker, Chair

Elliott Moreton, Director of Graduate Studies and Admissions

The Department of Linguistics offers graduate work leading to the degree of master of arts in linguistics.

Degree candidates must demonstrate both a basic knowledge of the field of linguistics as a whole and the ability to do independent study in a chosen specialty. Basic knowledge of linguistics is acquired by taking certain required courses; knowledge of a specialty is gained through elective courses as well as by writing a thesis.

The elective courses are expected to form a coherent program in a subfield of linguistics (e.g., phonology, syntax, historical linguistics, sociolinguistics, language acquisition) or in the application of linguistics to a closely related discipline (e.g., anthropology, the study of a particular language or language family). To this end, each student, after consultation with the director of graduate studies, will by the end of the second semester of residence choose a permanent advisor, who will supervise the student's program of study.

Information on applying to the linguistics M.A. program, as well as a detailed description of program requirements, can be found on the Linguistics Department Web site (http://linguistics.web.unc.edu/grad-program).

Hispanic Linguistics Dual Graduate Track: M.A. in Linguistics and Ph.D. in Romance Studies, Both with Concentration in Hispanic Linguistics

Hispanic linguistics is a discipline that focuses in particular on the structure, history, dialectal variation, acquisition, and use of Spanish, Portuguese, and other languages in contact with Spanish, using the analytic tools of modern linguistic theory. Specialists in Hispanic linguistics have a general, theoretical background in linguistics and specialize in phenomena directly relevant to the linguistic analysis of these particular languages. A Hispanic linguist has explicit, conscious knowledge of how these languages work, can communicate that knowledge to others, and can extend the world's stock of knowledge about those languages through original research.

Application and Admission

It is the policy (https://handbook.unc.edu/dual.html) of The Graduate School that "[s]tudents must apply to and be accepted by both programs individually before beginning in the dual degree program. In a practical sense, this means that students should apply to both academic programs at the same time, or apply to the second program no later than during their first year of the first program.Dual degrees will not be awarded after the curricular requirements have already been met without initial application." The applications will be considered separately by the admissions committees of the two departments. Those committees will make the final decision about admission to each department. A student who is not admitted concurrently by both departments is not admitted to the dual track for the relevant term, although he or she may still be admitted to the linguistics M.A. singly by a vote of that department's admissions committee. Based on the prerequisites set forth by the Department of Romance Studies, said student is ineligible for admission to the Romance studies Ph.D. for that term, though he or she may reapply to that degree for a later term. (A prospective student who already has an M.A. in linguistics cannot receive a second M.A. in the same field, hence is not eligible for the dual track, and should apply directly to the Romance studies Ph.D.)

A prospective student whose degree intent is a terminal M.A. in linguistics with concentration in Hispanic linguistics need only apply to the Linguistics Department. If the student later wants to be admitted to the dual track before completing the M.A., he or she must apply only to the Ph.D. in Romance studies during the first year of the M.A. If the student completes, or is in the second year and expects to complete, the M.A. and wants to be admitted to the Ph.D. in Romance studies, he or she must apply to the Department of Romance Studies.

Click here (http://gradschool.unc.edu/admissions/instructions.html) for information and guidelines on the The Graduate School's admissions application. Prospective students will submit their applications electronically to The Graduate School. Applications are only accepted for study beginning in the fall semester of each year. Recommenders must submit their letters electronically through the online application system. We do not accept any recommendations on paper or via e-mail. To be considered for competitive Graduate School fellowships, an applicant must submit all materials by the second week of December. (Actual date changes with the semester.) This includes GRE scores, transcripts, letters of recommendations, statement of purpose, writing sample, and the audio file referred to below. (All are to be submitted electronically.) Prospective students do not send hard copies of transcripts when applying. They are only uploaded into their application. If the students are admitted they will then have to submit hard copies of their FINAL transcript to The Graduate School only. Departmental funding (usually in the form of a teaching assistantship) may still be available to those who apply no later than the second week of January (the actual date changes with the semester) for Fall admission. Although applications received up to the latter date will be considered, it is strongly recommended that materials be submitted by December 15th.

Please note that in addition to the application materials that The Graduate School requests (such as the GRE), the dual track would like to receive the following three items:

* A one-page statement (written in English) in which the student explains his/her reasons for pursuing a graduate degree in Hispanic linguistics. S/he should also detail the areas of the proposed field.

* A writing sample in Spanish, such as a term paper that s/he has written for a course or a published article.

* An audio file of a few minutes' duration, on which s/he identifies herself by name in English; then speaks in Spanish about her professional goals and reads (also in Spanish) a short passage of his/her choice. The audio file is to be submitted to romlgrad@unc.edu. This last item is particularly important if the student is applying for a teaching assistantship.

The prerequisite for admission to the M.A. track with concentration in Hispanic linguistics is completion of a bachelor's degree and knowledge of Spanish.

Advising

The dual track will be served by the graduate advisors in each department. M.A. advising will be the responsibility of the linguistics graduate advisor, while Ph.D. advising will be the responsibility of the Romance studies graduate advisor.

A student who is admitted to the dual track is admitted simultaneously to the linguistics M.A. program and the Romance studies Ph.D. program, and must accept both admission offers before enrolling in classes. In any given semester, the student must be term-activated in one program or the other. Incoming students will normally be term-activated in the linguistics M.A. for approximately the first two years before switching their term activation to the Romance studies Ph.D. Regardless of which program the student is term-activated in, however, he or she may, in any semester, make progress towards the requirements of either program, or of both. Dual track students should ensure they have successfully submitted an application to graduate for each of their intended degree programs.

Degree programs must satisfy the general requirements of The Graduate School. In addition, the student must fulfill the following curriculum requirements for the master of arts degree:

Code	Title	Hours
Course Requirements		
LING 400	Introduction to General Linguistics (or approved equivalent)	3
LING 520	Linguistic Phonetics	3
LING 523	Phonological Theory I	3
LING 530	Syntactic Theory I	3
One course from among:		3
LING 525	Introduction to Historical and Comparative Linguistics	
LING 528	Language Acquisition I	
LING 537	Semantic Theory I	
Four elective courses in linguistics or related areas, as approved by the student's academic advisor		12
Thesis credit		3
Total Hours		30

Note: Students are expected to complete their nonelective courses during their first year. This schedule qualifies students to be considered for a linguistics teaching assistantship by their third semester. Deviations from it are therefore strongly discouraged.

Foreign Language Requirement

Reading knowledge of one foreign language. This requirement may be met in one of three ways:

1. By passing the Graduate Student Foreign Language Test, given each November and April by The Graduate School. For information and registration, go directly to the Web site (http://gradschool.unc.edu/student/gflpa.html).
2. Where available, by passing the reading courses for graduate students numbered 601 and 602 (these courses do not earn graduate credit). Note: Students with some prior experience may find it feasible to meet the requirement by enrolling directly in and passing 602, bypassing 601.
3. Where neither option 1 nor option 2 is available, students may arrange to have their competence certified by a qualified faculty member, usually through an informal examination.

Comprehensive Examination

During the semester following completion of the nonelective courses (which should be the fall term of the second year), students will form an examining committee of three faculty members in the department. It is expected that this committee will also serve as the M.A. thesis committee. The student will submit a prospectus of the M.A. thesis, as described below. The oral examination will assess the student's mastery of topics from the first-year sequence of course work and gauge the merits of the prospectus.

Writing Requirement

Each student must demonstrate the ability to write a professional-quality scholarly, scientific, or technical document. There are two options available for satisfying this requirement.

Thesis Option

The master's thesis (normally 50 to 100 pages in length) must be approved by a committee consisting of the thesis director and two other faculty members at the oral comprehensive exam. Students form their thesis committee with the advice of their academic advisor, who may (but need not) be the thesis director. At the comprehensive oral exam for the M.A., the department requires that students who have elected this option submit a prospectus of the thesis. The prospectus should state clearly what problem is to be investigated, how the investigation is to be carried out (written research, field work, experiment, etc.), and a preliminary bibliography. The prospectus should first be discussed with the thesis director. Students should then submit a "clean" version to all three committee members and set up a meeting at which the prospectus can be informally discussed and approved (perhaps with modifications). Students are also expected to consult their thesis director regularly during the actual writing of the thesis. Formal requirements regarding the format and submission of the M.A. thesis are found in the *Thesis and Dissertation Guide*.

The final oral examination, administered by the thesis committee, focuses on a defense of the thesis, but the faculty reserves the right to question students on other relevant topics. Students should avoid scheduling a thesis defense during the summer, since faculty members often are not available. If it is absolutely unavoidable, students should consult committee members well in advance.

Research Paper Option

The research paper is a report of original research that is of sufficient quality that it can be published or presented in a public scholarly forum. The research paper is to be written with the guidance of a faculty supervisor. The student should find two faculty sponsors, at least one of whom must be a member of the Linguistics Department, and at least one of whom must be the faculty supervisor, who agree to read the research paper for content and style. The student will submit a proposal for the research paper at the M.A. comprehensive oral exam. The research paper is then to be written during one semester, while the student is registered for LING 992 (thesis substitute), with the faculty supervisor. The research that the paper describes must also be presented by the student in

a public scholarly forum in order to fulfill the final oral examination requirement.

The faculty sponsors should communicate to the director of graduate studies their approval of the paper. The requirement is satisfied when both faculty members have accepted the same version of the paper and have certified that the research has been presented in a public scholarly forum. The faculty sponsors should communicate this to the director of graduate studies, along with a printed version of the paper. The DGS will communicate the outcome to The Graduate School using the Report of Approved Substitute form.

Important Degree Deadlines

Each year The Graduate School sets deadlines for graduation in a given term (fall, spring, summer). There are two sets of dates to be mindful of:

1. Students wishing to graduate must submit an application to graduate, as stipulated in the Graduate Student Handbook (http://handbook.unc.edu/graduation.html). These documents must be submitted in advance: typically July for August graduation, February for May graduation, and October for December graduation, but official dates will be posted on the University Registrar's calendar (http://registrar.unc.edu/AcademicCalendar). There is no penalty for failure to complete requirements for a requested graduation date, but a student cannot graduate without having submitted the application to graduate. Therefore students should submit it in time for any semester in which they think they may graduate.
2. The final electronic version of the thesis must be submitted to The Graduate School before the student can graduate. The deadline for submission is shortly before graduation; please see the University Registrar's calendar (http://registrar.unc.edu/AcademicCalendar) for current dates.

Note: The previous Ph.D. program in linguistics (1967–2011) no longer admits new students. Legacy students should consult the Department of Linguistics Web site (http://registrar.unc.edu/AcademicCalendar) *for degree requirements.*

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Misha Becker (12), Language Acquisition, Psycholinguistics, Language Revitalization
Paul Roberge (17), Pidgins and Creoles, Historical Linguistics, Germanic Linguistics

Associate Professors

David Mora-Marín (15), Historical Linguistics, Mayan Linguistics, Linguistic Anthropology
Elliott Moreton (8), Phonetics, Phonology, Cognitive Science
Katya Pertsova (10), Computational Linguistics, Morphology
Jennifer L. Smith (7), Phonology, Phonetics, Japanese
J. Michael Terry (9), Semantics, African American English

Assistant Professor

Brian Hsu (6), Syntax, Phonology

Professors Emeriti

Randall Hendrick
H. Craig Melchert

Adjunct Faculty

Becky Butler (Writing Center), Phonetics, Phonology, Southeast Asian Linguistics
Benjamin E. Frey (Department of American Studies), Cherokee Linguistics, German and Dutch Linguistics, German Language in America
Masako Hirotani, Linguistics, Cognitive Science, Psycholinguistics, Neurocognition of Language, Auditory Language Processing

In Other Departments

Jennifer Arnold (Department of Psychology), Psychology and Psycholinguistics
Uffe Bergeton (Department of Asian Studies), Early Chinese Language, History, and Thought
Lucia Binotti (Department of Romance Studies), Spanish Philology, Cultural Thought, Linguistic Historiography
Bruno Estigarribia (Department of Romance Studies), Spanish Linguistics, Language Development and Cognition
Nina Furry (Department of Romance Studies), French Linguistics
Peter C. Gordon (Department of Psychology), Psychology of Language
Lamar Graham (Department of Romance Studies), Romance Linguistics, Syntax
Thomas Hofweber (Department of Philosophy), Philosophy of Language
Wendan Li (Department of Asian Studies), Chinese Linguistics, Discourse
Patrick O'Neill (Department of English and Comparative Literature), Celtic Languages
Gillian Russell (Department of Philosophy), Philosophy of Language
Patricia E. Sawin (Department of American Studies), Ethnography of Communication

LING

Advanced Undergraduate and Graduate-level Courses

LING 400. Introduction to General Linguistics. 3 Credits.
An introduction to the scientific study of language. The nature of language structure. How languages are alike and how they differ.
Grading status: Letter grade
Same as: ANTH 400.

LING 401. Language and Computers. 3 Credits.
Uses simple linguistic problems to introduce students to the use of programming languages especially suited to analyze and process natural language on the computer. No prior programming knowledge is presupposed.
Requisites: Prerequisite, LING 101.
Grading status: Letter grade.

LING 409. Cognitive Linguistics. 3 Credits.
Development of and present state of research in cognitive linguistics. Readings discuss various language phenomena and are drawn from linguistics, psychology, philosophy, artificial intelligence, and literary analysis of metaphor.
Gen Ed: SS, CI.
Grading status: Letter grade.

LING 410. Advanced Philosophy of Language. 3 Credits.
At least two courses in philosophy other than PHIL 155, including PHIL 345, strongly recommended. A study of important contemporary contributions in philosophy of language. Topics include meaning, reference, and truth.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: PHIL 445, LING 445.

LING 422. Research Methods in Phonetics and Laboratory Phonology. 3 Credits.
Focuses on the practical skills required to carry out basic experiments in speech production or perception. Includes training in a general-purpose programming language (such as Perl) for automating repetitive tasks, experiment-control software, audio stimulus manufacture and editing, palatography, aerodynamic measurements, and other laboratory techniques relevant to student interests.
Requisites: Prerequisite, LING 200, 520, 523, or SPHS 540.
Grading status: Letter grade.

LING 428. Bilingualism and Second-Language Acquisition. 3 Credits.
This course covers theoretical issues in childhood simultaneous bilingualism, and child and adult second-language acquisition, under both naturalistic and classroom learning circumstances.
Requisites: Prerequisite, LING 101.
Grading status: Letter grade.

LING 444. Origin and Evolution of Human Language. 3 Credits.
Recommended preparation, at least one higher-level core course in linguistics. Surveys current answers to such questions as, When and how did language first appear? What do other animal communication systems share with language? Do restricted linguistic systems (e. g., pidgins) preserve "fossils" of early human language?
Requisites: Prerequisite, LING 101.
Gen Ed: HS, WB.
Grading status: Letter grade.

LING 445. Advanced Philosophy of Language. 3 Credits.
At least two courses in philosophy other than PHIL 155, including PHIL 345, strongly recommended. A study of important contemporary contributions in philosophy of language. Topics include meaning, reference, and truth.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: PHIL 445, LING 410.

LING 455. Symbolic Logic. 3 Credits.
Introduction for graduates and advanced undergraduates.
Gen Ed: QR.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: PHIL 455.

LING 458. Writing Systems: Past, Present, Future, Fictional. 3 Credits.
This course provides an introduction to the linguistic structure and historical development of the world's writing systems (e.g. Sumerian, Egyptian, Chinese, Greek, Semitic scripts, Indian abugidas, Olmec, Mayan, Incan), the methods for their decipherment and analysis, the cross-script generalizations that can be proposed through their comparative study, and the techniques for developing a new writing system for a previously unwritten language, as well as for inventing a language and writing system from scratch.
Requisites: Prerequisite, LING 101; permission of the instructor for students lacking the prerequisite.
Gen Ed: SS, WB.
Grading status: Letter grade.

LING 460. Introduction to Textual Data Analysis. 3 Credits.
The course covers methods for analyzing and compiling large amounts of textual data (corpora, databases, etc.) with the help of current software for text-manipulation, graphing, and statistical analysis.
Grading status: Letter grade.

LING 484. Discourse and Dialogue in Ethnographic Research. 3 Credits.
Study of cultural variation in styles of speaking applied to collection of ethnographic data. Talk as responsive social action and its role in the constitution of ethnic and gender identities.
Gen Ed: SS, CI, US.
Grading status: Letter grade
Same as: ANTH 484, FOLK 484.

LING 490. Advanced Topics in Linguistics. 3 Credits.
Directed readings on linguistic topics not covered in specific courses.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

LING 493. Internship in Linguistics. 3 Credits.
Permission of instructor. This course allows students to integrate theoretical knowledge with practice through an internship experience in the field of linguistics. Students may work with businesses or organizations in the areas of computational linguistics, language documentation, education, publishing, or other related fields. Activities must be approved by faculty and supervised by a mentor.
Gen Ed: EE- Academic Internship.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Pass/Fail.

LING 495. Individual Mentored Research. 1-3 Credits.
Permission of instructor. Students carry out a research project of their own design under the direct supervision of a faculty mentor. This course is intended for advanced, motivated students who would like to pursue an in-depth research project within a single semester.
Gen Ed: EE- Mentored Research.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

LING 496. Independent Study in Linguistics. 1-3 Credits.
Permission of the director of undergraduate studies. LING 101 and additional coursework in linguistics strongly recommended. An intensive mentored project; topic to be determined in a learning contract between student and instructor.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

LING 500. Linguistics Colloquium. 1 Credit.
This course corresponds to our weekly department colloquium, which gives students an opportunity to learn about current research in the field from local and external invited speakers, present their own work in progress or completed thesis research, and to engage in a variety of professional development activities led by faculty.
Repeat rules: May be repeated for credit. 4 total credits. 4 total completions.
Grading status: Letter grade.

LING 520. Linguistic Phonetics. 3 Credits.
Introduction to the general principles of linguistic phonetics; anatomy of vocal tract, physiology of speech production, universal phonetic theory. Practice in the recognition and transcription of speech sounds.
Grading status: Letter grade
Same as: ANTH 520.

LING 522. Experimental Phonetics and Laboratory Phonology. 3 Credits.
This course relates linguistic theory to experimental findings. Students design and carry out experiments to test theoretical issues of current theoretical importance.
Requisites: Prerequisites, LING 520, and 200 or 523.
Grading status: Letter grade.

LING 523. Phonological Theory I. 3 Credits.
Permission of the instructor for undergraduates. Introduction to the principles of modern generative phonology. Methods and theory of phonological analysis. Students may not receive credit for both LING 200 and LING 523.
Requisites: Prerequisite, LING 520, or SPHS 530 or 540.
Grading status: Letter grade
Same as: ANTH 523.

LING 524. Phonological Theory II. 3 Credits.
Intermediate phonological theory and analysis.
Requisites: Prerequisite, LING 200 or 523.
Grading status: Letter grade.

LING 525. Introduction to Historical and Comparative Linguistics. 3 Credits.
Permission of the instructor for undergraduates. Theories and methods of historical and comparative linguistics, with emphasis upon the Indo-European family. Students may not receive credit for both LING 202 and LING 525.
Grading status: Letter grade.

LING 526. Second-Language Phonetics and Phonology. 3 Credits.
Production, perception, and phonological patterns and processes in second-language learning and use. Effects of first-language transfer and universal linguistic factors. Seminar-style class based on primary literature.
Requisites: Prerequisite, LING 101.
Gen Ed: SS.
Grading status: Letter grade.

LING 527. Morphology. 3 Credits.
Cross-linguistic investigation of internal word structure: inflection and derivation, word formation rules versus affixation, autosegmental morphology, morpholexical and morphophonemic rules, and the interaction of morphology with phonology and syntax.
Requisites: Prerequisite, LING 101 or 400.
Grading status: Letter grade.

LING 528. Language Acquisition I. 3 Credits.
Permission of the instructor for undergraduates. One course in phonology or syntax recommended. Child language from a theoretical perspective. Topics include segmentation problems, acquisition of phonology, morphology and syntax, lexical acquisition, and language development in blind and deaf children and in bilinguals. Students may not receive credit for both LING 203 and LING 528.
Grading status: Letter grade.

LING 529. Language Acquisition II. 3 Credits.
This course focuses on the development of syntax in first-language acquisition in children. Topics will include parameter setting, null subjects, root infinitives, aspect, A-movement, binding theory, and control.
Requisites: Prerequisites, LING 203 or 528, and LING 201 or 530.
Grading status: Letter grade.

LING 530. Syntactic Theory I. 3 Credits.
Permission of the instructor for undergraduates. Methods and theory of grammatical analysis within the transformational generative framework. Special emphasis on analyzing syntactic and semantic structures of English. Students may not receive credit for both LING 201 and LING 530.
Grading status: Letter grade.

LING 533. Syntactic Theory II. 3 Credits.
Methods and theory of grammatical analysis, with special reference to transformational grammar.
Requisites: Prerequisite, LING 530.
Grading status: Letter grade.

LING 537. Semantic Theory I. 3 Credits.
Semantics as a part of linguistic theory: co- and disjoint reference among nominals, "crossover" phenomena, quantifier scope, lexical semantics, Montague grammar and compositional semantics, and explanatory universals in semantic theory.
Requisites: Prerequisite, LING 101 or 400.
Grading status: Letter grade.

LING 538. Semantic Theory II. 3 Credits.
A continuation of LING 537 (Semantic Theory I), this course prepares the student to read the formal semantic literature and to do original research in the field. .
Requisites: Prerequisite, LING 537.
Grading status: Letter grade.

LING 539. Language of Time. 3 Credits.
The representation of time and temporal relations in natural languages. Cross-linguistic study of tense and aspect distinctions, modality, temporal adverbials, temporal anaphora, and sequences of tenses.
Requisites: Prerequisite, LING 101 or 400.
Grading status: Letter grade.

LING 540. Mathematical Linguistics. 3 Credits.
Introduction to topics in logic, set theory, and modern algebra with emphasis on linguistic application. Automata theory and the formal theory of grammar with special reference to transformational grammars. No previous mathematics assumed.
Requisites: Prerequisite, LING 101.
Gen Ed: QI.
Grading status: Letter grade.

LING 541. Sociolinguistics. 3 Credits.
Introduction to the study of language in relation to society; variation as it correlates with socioeconomic status, region, gender; the social motivation of change; language and equality; language maintenance, planning, shift.
Requisites: Prerequisite, LING 101 or 400.
Grading status: Letter grade
Same as: ANTH 541.

LING 542. Pidgins and Creoles. 3 Credits.
Examination of the social contexts of language contact and their linguistic outcomes, with particular emphasis on the formation of pidgins and creoles. The course investigates the structural properties of these new contact languages and evaluates the conflicting theories that explain their genesis.
Requisites: Prerequisite, LING 101 or 400.
Grading status: Letter grade
Same as: ANTH 542.

LING 543. Language in Politics. 3 Credits.
Examines language as a political issue in the 19th and 20th centuries. Emphasis placed on American and British politics but attention to one other national context as well.
Grading status: Letter grade.

LING 545. Language and Mind. 3 Credits.
The course treats the relationship among linguistics, artificial intelligence, neurobiology, cognitive psychology, and the philosophies of mind, language, and science.
Requisites: Prerequisite, ENGL 313, LING 101, LING 400, or PHIL 145; permission of the instructor for students lacking the prerequisite.
Gen Ed: PH.
Grading status: Letter grade.

LING 547. Language Deficits and Cognition. 3 Credits.
Survey of the linguistic properties associated with aphasia, autism, Williams syndrome, dyslexia, and schizophrenia. Emphasis on the implications of these conditions for theories of mind.
Requisites: Prerequisite, LING 101 or 400.
Grading status: Letter grade.

LING 550. Introduction to Indo-European: Phonology. 3 Credits.
A survey of the phonological systems of the major Indo-European languages and their development from Proto-Indo-European.
Grading status: Letter grade.

LING 551. Introduction to Indo-European: Morphology. 3 Credits.
Introduction to the major morphological categories in the Indo-European languages and their development from the proto-language.
Requisites: Prerequisite, LING 550.
Grading status: Letter grade.

LING 558. Ancient Mayan Hieroglyphs. 3 Credits.
This course is an introduction to the ancient scripts of pre-Columbian Mexico and Central America. It focuses on the following scripts: Mayan, Epi-Olmec, Zapotec, and Mixtec.
Gen Ed: HS.
Grading status: Letter grade.

LING 560. Mesoamerican Languages and Linguistics. 3 Credits.
Surveys the basic characteristics that unify Mesoamerica as a cultural and linguistic area (e.g. sound systems, word order, color systems, diffused vocabulary, etc.), the basic sources of cultural and linguistic information available (e.g. ancient hieroglyphs, colonial manuscripts, contemporary documents, linguistic fieldwork), and the consequences of ancient and modern cross-cultural interaction.
Gen Ed: BN.
Grading status: Letter grade.

LING 561. Native Languages of the Americas. 3 Credits.
This course explores the phonological and morphological structure of selected Amerindian languages indigenous to the Americas. Emphasis is on the linguistic analysis of original as well as published primary data.
Requisites: Prerequisite, LING 101 or 400.
Grading status: Letter grade.

LING 562. Structure of Russian. 3 Credits.
Examines Russian from the perspective of linguistic analysis. How do sounds, words, and sentences pattern in Russian? How do these compare with patterns in other languages? Also considers the influence of evidence from Russian on the development of linguistic theory.
Requisites: Prerequisite, LING 101 or RUSS 102; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: RUSS 562.

LING 563. Structure of Japanese. 3 Credits.
Introductory linguistic description of modern Japanese. For students of linguistics with no knowledge of Japanese and students of Japanese with no knowledge of linguistics.
Requisites: Prerequisite, JAPN 102 or LING 101.
Gen Ed: SS.
Grading status: Letter grade
Same as: JAPN 563.

LING 564. History of the French Language. 3 Credits.
The phonology, morphology, and syntax of French are traced from the Latin foundation to the present. Lectures, readings, discussions, and textual analysis.
Requisites: Prerequisites, FREN 300, and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: FREN 564.

LING 565. French Phonetics and Phonology. 3 Credits.
Study of the sound system and prosody features of standard French, emphasizing practical application in a variety of oral activities. Requires learning linguistic terminology and the phonetic alphabet
Requisites: Prerequisite, FREN 255, 260, or 262; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: FREN 565.

LING 566. Structure of Modern French. 3 Credits.
Introduction to phonology, morphology, and syntax of modern standard French. Application of modern linguistic theory to the teaching of French.
Requisites: Prerequisites, FREN 300, and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: FREN 566.

LING 567. Structure of German. 3 Credits.
LING 101 recommended for undergraduates. Introduction to formal analysis of German grammar (phonology, morphophonemics, prosodics, morphology, syntax) within the framework of generative grammar.
Requisites: Prerequisites, GERM 302 and 303; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: GERM 501.

LING 573. Linguistic Field Methods I. 3 Credits.
Analysis and description of a language unknown to the class from data solicited from a native-speaker consultant.
Requisites: Prerequisites, LING 101, and one of LING 200, 376, or 422.
Grading status: Letter grade.

LING 574. Linguistic Field Methods II. 3 Credits.
Continuation of LING 573.
Grading status: Letter grade.

LING 583. History and Philosophy of Linguistics. 3 Credits.
Linguistic theories from classical times to the present with special emphasis on the origins of contemporary theories.
Requisites: Prerequisite, LING 101.
Grading status: Letter grade.

LING 678. History of the Spanish Language. 3 Credits.
SPAN 376 desirable. A theoretical study of the evolution of Spanish from classical and spoken Latin, focusing on phonological, morphological, and syntactic phenomena. Intended for linguistics majors.
Requisites: Prerequisite, SPAN 360; permission of the instructor for students lacking the prerequisite.
Gen Ed: HS, WB.
Grading status: Letter grade
Same as: SPAN 678.

LING 691H. Senior Honors Thesis. 3 Credits.
See the program for honors in the College of Arts and Sciences and the department honors advisor.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

LING 692H. Senior Honors Thesis. 3 Credits.
See the program for honors in the College of Arts and Sciences and the department honors advisor.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

For Irish and Welsh, see English; for Hebrew, see Religious Studies; for Arabic, Chinese and Japanese, see Asian Studies in the Undergraduate Bulletin.

LING 712. Advanced Studies in Philosophy of Language. 3 Credits.

LING 715. Advanced Methods in Phonology. 3 Credits.
Methods of theoretical argumentation in generative phonology with emphasis on recent proposals in the published literature.
Requisites: Prerequisite, LING 524.
Grading status: Letter grade.

LING 716. Advanced Methods in Syntax. 3 Credits.
Examination of recent developments in the theory and methods of syntactic analysis.
Requisites: Prerequisite, LING 533; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

LING 723. Seminar in Anthropological Linguistics. 3 Credits.
Selected topics from general linguistics and sociolinguistics, special emphasis on methods and problems involved in analysis and description of semantic structure of language and its relation to the rest of culture.
Grading status: Letter grade
Same as: ANTH 723.

LING 730. Comparative Grammar of Ancient Languages. 3 Credits.
Introductory and advanced work in the earlier stages of extant languages and in extinct languages.
Grading status: Letter grade.

LING 790. Dialectology. 3 Credits.
Principles and methods of areal linguistics and social dialectology.
Grading status: Letter grade
Same as: ANTH 790.

LING 794. Linguistic Field Methods II. 3 Credits.
Continuation of LING 573.
Grading status: Letter grade.

LING 814. History of the English Language. 3 Credits.
Study of English from its Proto-Indo-European origins through the 18th century focusing on historic events and the major changes to the structure and usage of English they occasioned.
Grading status: Letter grade
Same as: ENGL 814.

LING 860. Seminar. 3 Credits.
Topics vary to include specialized areas of linguistics study.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

LING 861. Seminar. 3 Credits.
Seminar in phonological theory.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

LING 862. Seminar. 3 Credits.
Seminar in grammatical theory.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

LING 893. Current Problems in Linguistics. 3 Credits.
This course explores relations of linguistics with neighboring fields and theoretical problems of current relevance within linguistics itself; some attention given to pedagogical methodology.
Grading status: Letter grade.

LING 897. Special Readings. 3 Credits.
Readings in linguistic topics that are not covered in the existing courses.
Grading status: Letter grade.

LING 992. Master's (Non-Thesis). 3 Credits.
Non-Thesis Option
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.

LING 993. Master's Research and Thesis. 3 Credits.

LING 994. Doctoral Research and Dissertation. 3 Credits.

MAYA

Advanced Undergraduate and Graduate-level Courses

MAYA 401. Introduction to Yucatec Maya. 3 Credits.
Introduction to basic grammar and vocabulary, as well as cultural context and literary genres.
Grading status: Letter grade.

DEPARTMENT OF MARINE SCIENCES (GRAD)

Contact Information

Department of Marine Sciences
Visit Program Website (http://www.marine.unc.edu)

Harvey Seim, Chair

Marc J. Alperin, Associate Chair, Director of Undergraduate Studies

Brent McKee, Director of Graduate Studies

Adrian Marchetti, Director of Graduate Admissions

The Department of Marine Sciences provides teaching and research in estuarine, coastal, and oceanographic sciences leading to M.S. and Ph.D. degrees in marine sciences. The two elements of the program are the Department of Marine Sciences (MASC) located in Murray Venable Hall on the Chapel Hill campus and the Institute of Marine Sciences (IMS) located on the waterfront in Morehead City, North Carolina. The Department of Marine Sciences is the degree granting-unit; all marine sciences graduate students are enrolled in the department. IMS faculty have joint faculty appointments in the department, and this enables their participation in graduate student academic activities. Research programs in physical oceanography, marine biology and ecology, marine geochemistry, marine geology, and coastal meteorology are conducted in North Carolina and throughout the world by faculty from the department and the IMS.

Courses and facilities at other coastal laboratories are also available to UNC–Chapel Hill marine sciences students through cooperative agreements. Courses at North Carolina State University, UNC–Charlotte, UNC–Greensboro, North Carolina Central University, and Duke University may be taken for credit through an interinstitutional registration program.

Requirements for Admission

For admission to the Department of Marine Sciences, an undergraduate degree is required in a basic science such as physics, mathematics, chemistry, biology, bacteriology, botany, zoology, geology, or in computer science or engineering. Students are advised to develop a broad undergraduate science major with as many as possible of the following courses: mathematics through calculus, computer science, physics, general and organic chemistry, environmental science, physical chemistry, invertebrate zoology or paleontology, botany, zoology, ecology, physiology, geology, and statistics.

Each graduate student in the Department of Marine Sciences must gain a broad background in the marine sciences as well as an in-depth understanding of his or her own subdiscipline (e.g., chemical oceanography). This is accomplished by taking at least three of the four core courses (Marine Geology, Biological Oceanography, Chemical Oceanography, and Physical Oceanography: MASC 503,MASC 504, MASC 505, and MASC 506, respectively) and advanced courses determined by each student's advisory committee, and by participating in research that ultimately results in an M.S. thesis or a Ph.D. dissertation. By the end of the 24-month period that begins when a student first enrolls in the department, the student is expected to have completed the four core courses, How to Give a Seminar (MASC 705), and Student Interdisciplinary Seminar (MASC 706), and to have taken a written comprehensive exam (M.S. students) in his or her subdiscipline. Further information on degree requirements may be found at the department's Web site (http://marine.unc.edu).

Doctor of Philosophy

The academic program for a Ph.D. student will be supervised by a faculty advisory committee of at least five members drawn from the UNC–Chapel Hill graduate faculty. Course requirements normally include at least three of the four core courses, additional advanced courses determined by the student's advisory committee, one hour of MASC 705, How to Give a Seminar, and one hour of MASC 706, Student Interdisciplinary Seminar. A waiver for one or more of the core courses can be arranged with the approval of the student's advisory committee and the Department of Marine Sciences Performance Committee. Additional requirements include passing a comprehensive examination containing both written (research proposal) and oral (proposal defense seminar) parts, a period of study or research at a marine station or participation on an oceanographic cruise, teaching experience sufficient to develop and demonstrate competence, and scientific research resulting in a written dissertation, which is defended by the student. More details on the Ph.D. comprehensive examination, admission to candidacy, semesters of residence credit, the dissertation, and final oral examination (the dissertation defense) are provided in the *Marine Sciences Graduate Student Handbook* and in *The Graduate School Handbook,* both available on the department's Web site (http://marine.unc.edu).

Master of Science

The M.S. degree program is similar to the Ph.D. program except for the following: the advisory committee will be composed of three faculty members, the comprehensive examination is a written exam only, and scientific research will result in a written thesis, to be defended by the student. At least 30 hours of course credit must be earned prior to completing the M.S. degree program. Additional details on the comprehensive examination, admission to candidacy, semesters of residence credit, the thesis, and final oral examination (the thesis defense) are provided in the *Marine Sciences Graduate Student Handbook* and in *The Graduate School Handbook,* both available on the department's Web site (http://marine.unc.edu).

Marine Sciences Core Courses

Code	Title	Hours
MASC 503	Marine Geology	4
MASC 504	Biological Oceanography	4
MASC 505	Chemical Oceanography	4
MASC 506	Physical Oceanography	4
Total Hours		16

Professors

Carol Arnosti, Marine Organic Geochemistry, Microbial Biogeochemistry
John M. Bane, Physical Oceanography and Meteorology, Gulf Stream and Upwelling Dynamics
Larry K. Benninger, Sedimentary Geochemistry
Jaye Cable, Groundwater Dynamics at the Land-Sea Interface, Biogeochemical Cycling, Wetland and Coastal Hydrology
Niels Lindquist, Chemical Ecology, Natural Products
Rick Luettich, Coastal Physical Oceanography, Modeling, Coastal Hazards
Christopher S. Martens, Marine Geochemistry
Brent A. McKee, Geochemistry/Geology of River-Ocean Environments, Sedimentary Geochemistry/Radiochemistry

Rachel Noble, Dynamics of Marine Microbial Food Webs
Hans W. Paerl, Microbial Ecology
Charles H. Peterson, Ecology, Population Interactions
Mike Piehler, Coastal Ecosystems and Estuarine Ecology
Antonio B. Rodriguez, Sedimentology, Marine and Coastal Geology
Harvey E. Seim, Observational Physical Oceanography, Coastal and Estuarine Dynamics
Alberto Scotti, Computational and Theoretical Fluid Dynamics, Environmental and Stratified Flows, Turbulence
Andreas Teske, Microbial Systematics and Evolution, Microbial Ecology, Microbiology of Hydrothermal Vents and the Marine Subsurface

Associate Professors

Marc J. Alperin, Chemical Oceanography, Biogeochemistry
Joel Fodrie, Fisheries Oceanography and Ecology, Restoration Ecology
Adrian Marchetti, Ecophysiology and Molecular Biology of Marine Phytoplankton
Brian L. White, Fluid Dynamics of Coastal Marine Systems, Hydrodynamics of Aquatic Vegetation, Gravity Currents, Shear Flows and Internal Waves

Assistant Professors

Karl D. Castillo, Marine Physiological Ecology, Climate Change and Coral Reefs
Scott Gifford, Physiology, Genomics and Systems Biology of Marine Bacteria, Bacterial Roles in the Marine Carbon Cycle
Alecia N. Septer, Marine Microbiology and Bacterial Interactions
Mei Wei,Tropical Cyclones and Climate Dynamics

Research Associate Professor

Johanna Rosman (UNC Institute of Marine Sciences), Physical Oceanography

Research Assistant Professors

Brett Froelich, Microbiology
Barbara MacGregor, Microbial Ecology

Faculty Emeriti

Dan Albert
Jan J. Kohlmeyer
A. Conrad Neumann

Adjunct Faculty

Frederick M. Bingham (UNC–Wilmington, Physics), Circulation and Water Mass Transportation
Carolyn Currin (National Oceanic and Atmospheric Administration), Coastal and Estuarine Ecology
Stephen R. Fegley (UNC Institute of Marine Sciences), Marine Biology/ Ecology
Jeffrey Hanson (U.S. Army Corps of Engineers Duck Field Research Facility), Dynamics of Surface Waves
Mandy Joye (University of Georgia), Biogeochemistry, Microbial Ecology, Molecular Biology
Wayne Litaker (National Oceanic and Atmospheric Administration), Ecology, Taxonomy and Molecular Biology of Harmful Algal Blooms
Kenneth J. Lohmann (Biology), Sea Turtle Navigation, Neuroethology of Sea Slug Orientation, Lobster Homing and Navigation
Stephen A. Skrabal (UNC–Wilmington, Chemistry), Trace Metal Geochemistry in Natural Waters
Jill Stewart (UNC Environmental Science and Engineering), Environmental Microbiology, Waterborne Pathogens
Pat Tester (National Oceanic and Atmospheric Administration), Oceanography and Ecology of Harmful Algal Blooms

MASC

Advanced Undergraduate and Graduate-level Courses

MASC 401. Oceanography. 3 Credits.
Required preparation, major in a natural science or two courses in natural sciences. Studies origin of ocean basins, seawater chemistry and dynamics, biological communities, sedimentary record, and oceanographic history. Term paper. Students lacking science background should see MASC 101. Students may not receive credit for both MASC 101 and MASC 401.
Grading status: Letter grade
Same as: BIOL 350, ENVR 417, GEOL 403.

MASC 410. Earth Processes in Environmental Systems. 4 Credits.
Principles of geological and related Earth systems sciences are applied to analyses of environmental phenomena. The link between the lithosphere and other environmental compartments is explored through case studies of environmental issues. Three lecture hours and one laboratory hour a week.
Requisites: Prerequisites, CHEM 102, GEOL 200, MATH 231, and PHYS 115 or 119; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: ENEC 410, GEOL 410.

MASC 411. Oceanic Processes in Environmental Systems. 4 Credits.
Principles of analysis of the ocean, coast, and estuarine environments and the processes that control these environments are applied to the analysis of environmental phenomena. Case studies of environmental issues. Three lecture hours and one laboratory hour a week.
Requisites: Prerequisites, BIOL 101, CHEM 102, ENEC 222, MATH 231, PHYS 115 or 119; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: ENEC 411, GEOL 411.

MASC 415. Environmental Systems Modeling. 3 Credits.
This course explores principles and strategies for studying environmental phenomena, and presents methods for developing explanatory and predictive models of environmental systems, e.g., predator-prey, estuaries, greenhouse gases, and ecosystem material cycles.
Requisites: Prerequisite, MATH 383; pre- or corequisite, PHYS 115 or 118, and COMP 116.
Grading status: Letter grade
Same as: ENEC 415, GEOL 415.

MASC 432. Major World Rivers and Global Change: From Mountains to the Sea. 3 Credits.
What are the linkages between rivers and global change? This course examines the hydrological, geological and biogeochemical processes that control material flux from land to the oceans via rivers.
Grading status: Letter grade.

MASC 433. Wetland Hydrology. 3 Credits.
Study of wetland ecosystems with particular emphasis on hydrological functioning, the transition from terrestrial to aquatic systems, wetlands as filtration systems, and exchange between wetlands and other environments.
Grading status: Letter grade
Same as: ENEC 433.

MASC 434. Blue Carbon and Coastal Environments. 3 Credits.
Permission of the instructor is required. Readings and discussions about processes in traditional "Blue Carbon" environments (marshes, sea grass beds, and mangroves) and an exploration of carbon burial in other coastal ecosystems such as floodplains and oyster reefs.
Grading status: Letter grade.

MASC 440. Marine Ecology. 3 Credits.
Survey of the ecological processes that structure marine communities in a range of coastal habitats. Course emphasizes experimental approaches to addressing basic and applied problems in marine systems.
Requisites: Prerequisite, BIOL 201 or 475.
Gen Ed: PL.
Grading status: Letter grade
Same as: BIOL 462.

MASC 441. Marine Physiological Ecology. 3 Credits.
This course introduces students to the physiological, morphological, and behavioral factors employed by marine organisms to cope with their physical environment. Emphasis will be placed on the response of marine organisms to environmental factors such as seawater temperature, light, water salinity, ocean acidification, etc.
Grading status: Letter grade
Same as: ENEC 441.

MASC 442. Marine Biology. 3 Credits.
Recommended preparation, BIOL 201 or 475. A survey of plants and animals that live in the sea: characteristics of marine habitats, organisms, and the ecosystems will be emphasized. Marine environment, the organisms involved, and the ecological systems that sustain them.
Gen Ed: PL.
Grading status: Letter grade
Same as: BIOL 457.

MASC 443. Marine Microbiology. 3 Credits.
Restricted to junior or senior science majors or graduate students, with permission of the instructor. Seminar class focuses on the primary research literature. Physiology of marine microorganisms, microbial diversity and ecology of the marine environment, biogeochemical processes catalyzed by marine microorganisms.
Gen Ed: PL.
Grading status: Letter grade.

MASC 444. Marine Phytoplankton. 3 Credits.
Permission of the instructor. For junior and senior science majors or graduate students. Biology of marine photosynthetic protists and cyanobacteria. Phytoplankton evolution, biodiversity, structure, function, biogeochemical cycles and genomics. Harmful algal blooms, commercial products, and climate change. Three lecture/practical session hours per week.
Grading status: Letter grade
Same as: ENEC 444, BIOL 456.

MASC 445. Marine Invertebrate Biology. 4 Credits.
See BIOL 475 for description.
Grading status: Letter grade.

MASC 446. Marine Microbial Symbioses: Exploring How Microbial Interactions Affect Ecosystems and Human Health. 3 Credits.
Course material covers host-microbe and microbe-microbe interactions found in marine ecosystems, including beneficial and parasitic relationships among viruses, microbes, marine animals, and humans. Limited to upper-level undergraduate science majors and graduate students.
Gen Ed: PL.
Grading status: Letter grade
Same as: BIOL 452.

MASC 447. Microbial Ecological Genomics. 3 Credits.
Permission of the instructor. For junior and senior science majors and graduate students. Active learning class focused on sequencing and bioinformatic analysis of microbial genomes to identify their ecological function. Topics include sequencing technologies, genome assembly and analysis, command line, bioinformatic tools, and genes mediating microbial physiology and metabolism in natural ecosystems.
Gen Ed: PL.
Grading status: Letter grade.

MASC 448. Coastal and Estuarine Ecology. 4 Credits.
A field-intensive study of the ecology of marine organisms and their interactions with their environment, including commercially important organisms. Laboratory/recitation/field work is included and contributes two credit hours to the course.
Requisites: Prerequisites, CHEM 102 and MATH 231.
Grading status: Letter grade
Same as: ENEC 448.

MASC 450. Biogeochemical Processes. 4 Credits.
Principles of chemistry, biology, and geology are applied to analysis of the fate and transport of materials in environmental systems, with an emphasis on those materials that form the most significant cycles. Three lecture hours and one laboratory hour a week.
Requisites: Prerequisites, MATH 231, and PHYS 114 or 118; permission of the instructor for students lacking the prerequisites.
Gen Ed: PL.
Grading status: Letter grade
Same as: ENEC 450, GEOL 450.

MASC 455. Geochemistry. 3 Credits.
Required preparation, one introductory geology course. Introduction to the application of chemical principles to geological problems. Topics include thermodynamics, kinetics, and isotope geochemistry. Previously offered as GEOL 512/MASC 553.
Requisites: Prerequisites, CHEM 102 and MATH 231; permission of the instructor for students lacking the prerequisites.
Gen Ed: QI.
Grading status: Letter grade
Same as: GEOL 405.

MASC 460. Fluid Dynamics of the Environment. 3 Credits.
Principles and applications of fluid dynamics to flows of air and water in the natural environment. Conservation of momentum, mass, and energy applied to lakes, rivers, estuaries, and the coastal ocean. Dimensional analysis and scaling emphasized to promote problem-solving skills.
Requisites: Prerequisite, MATH 232; permission of the instructor for students lacking the prerequisite.
Gen Ed: QI.
Grading status: Letter grade.

MASC 470. Estuarine and Coastal Marine Science. 4 Credits.
For graduate students; undergraduate students should take ENEC 222 or have permission of the instructor. Introduction to estuarine environments: geomorphology, physical circulation, nutrient loading, primary and secondary production, carbon and nitrogen cycling, benthic processes and sedimentation. Considers human impacts on coastal systems, emphasizing North Carolina estuaries.
Gen Ed: PL, QI.
Grading status: Letter grade.

MASC 471. Human Impacts on Estuarine Ecosystems. 4 Credits.
A cohesive examination of the human impacts on biological processes in estuarine ecosystems. Laboratory/recitation/field work is included and contributes two credit hours to the course.
Requisites: Prerequisites, CHEM 102 and MATH 231.
Grading status: Letter grade
Same as: ENEC 471.

MASC 472. Barrier Island Ecology and Geology. 6 Credits.
Recommended preparation, one introductory geology course. An integration of barrier island plant and animal ecology within the context of physical processes and geomorphological change. Emphasis on management and impact of human interference with natural processes.
Gen Ed: PL, EE- Field Work.
Grading status: Letter grade.

MASC 473. The Changing Coasts of Carolina. 3 Credits.
A rigorous combination of field work, lab work, and colorful, original contemporary writing on the natural world will help tell the story of our many, evolving North Carolina coasts. Combining marine science and the creative literary arts, this immersive course will explore issues of change over many eras. This combination of social, cultural, and scientific observation will lead to imaginatively constructed, well-written non-fiction reportage about one of North America's most productive, compelling, and challenging regions.
Gen Ed: CI, EE- Field Work.
Grading status: Letter grade
Same as: ENGL 473.

MASC 480. Modeling of Marine and Earth Systems. 1-3 Credits.
Mathematical modeling of dynamic systems, linear and nonlinear. The fundamental budget equation. Case studies in modeling transport, biogeochemical processes, population dynamics. Analytical and numerical techniques; chaos theory; fractal geometry.
Requisites: Prerequisite, MATH 232; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: GEOL 480, ENVR 480.

MASC 483. Geologic and Oceanographic Applications of Geographical Information Systems. 4 Credits.
Required preparation, four GEOL courses or permission of the instructor. Focus is on applying GIS concepts and techniques to mining and petroleum geology, resource assessment, hydrogeology, coastal and marine geology, physical oceanography, engineering geology, and a geologic perspective on land use. Three lecture and two laboratory hours a week.
Grading status: Letter grade
Same as: GEOL 483.

MASC 490. Special Topics in Marine Sciences for Undergraduates and Graduates. 1-3 Credits.
Directed readings, laboratory, and/or field study of marine science topics not covered in scheduled courses.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

MASC 503. Marine Geology. 4 Credits.
For graduate students; undergraduates need permission of the instructor. Investigates formation of the oceans, plate tectonics, carbonate reefs and platforms, sediment transport from the land to deep-sea fans, glacial-marine geology, marine records of changes in sea level and climate, and the evolution of barrier islands, estuaries, and deltas. Mandatory weekend field trip to the Southern Outer Banks.
Gen Ed: PL.
Grading status: Letter grade
Same as: GEOL 503.

MASC 504. Biological Oceanography. 4 Credits.
For graduate students; undergraduates need permission of the instructor. Marine ecosystem processes pertaining to the structure, function, and ecological interactions of biological communities; management of biological resources; taxonomy and natural history of pelagic and benthic marine organisms. Three lecture and one recitation hours per week. Two mandatory weekend fieldtrips.
Gen Ed: PL.
Grading status: Letter grade
Same as: BIOL 657, ENVR 520.

MASC 505. Chemical Oceanography. 4 Credits.
Graduate students only; undergraduates must have permission of the instructor. Overview of chemical processes in the ocean. Topics include physical chemistry of seawater, major element cycles, hydrothermal vents, geochemical tracers, air-sea gas exchange, particle transport, sedimentary processes, and marine organic geochemistry. Three lecture and two recitation hours per week.
Gen Ed: PL.
Grading status: Letter grade
Same as: ENVR 505, GEOL 505.

MASC 506. Physical Oceanography. 4 Credits.
For graduate students; undergraduates need permission of the instructor. Descriptive oceanography, large-scale wind-driven and thermohaline circulations, ocean dynamics, regional and nearshore/estuarine physical processes, waves, tides. Three lecture and one recitation hour per week.
Gen Ed: PL.
Grading status: Letter grade
Same as: GEOL 506.

MASC 550. Biogeochemical Cycling. 3 Credits.
Biogeochemical cycling explores interfaces of marine, aquatic, atmospheric, and geological sciences emphasizing processes controlling chemical distributions in sediments, fresh and salt water, the atmosphere, and fluxes among these reservoirs.
Requisites: Prerequisites, ENVR 421; GEOL 405, 436, 655; MASC 440, 505; or permission of the instructor.
Gen Ed: PL, CI.
Grading status: Letter grade
Same as: GEOL 550.

MASC 552. Organic Geochemistry. 3 Credits.
Recommended preparation, CHEM 261 or MASC 505, and one additional ENVR, GEOL, or MASC course above 400. Sources, transformations, and fate of natural organic matter in marine environments. Emphasis on interplay of chemical, biological, and physical processes that affect organic matter composition, distribution, and turnover.
Gen Ed: PL.
Grading status: Letter grade
Same as: GEOL 552, ENVR 552.

MASC 560. Fluid Dynamics. 3 Credits.
The physical properties of fluids, kinematics, governing equations, viscous incompressible flow, vorticity dynamics, boundary layers, irrotational incompressible flow.
Requisites: Prerequisite, PHYS 401; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: ENVR 452, GEOL 560, PHYS 660.

MASC 561. Time Series and Spatial Data Analysis. 3 Credits.
Three components: statistics and probability, time series analysis, and spatial data analysis. Harmonic analysis, nonparametric spectral estimation, filtering, objective analysis, empirical orthogonal functions.
Requisites: Prerequisite, MATH 233; permission of the instructor for students lacking the prerequisite.
Gen Ed: PL, QI.
Grading status: Letter grade.

MASC 562. Turbulent Boundary Layers. 3 Credits.
Turbulence and transport in near-bottom boundary regions. Turbulence and mixing theory in boundary layers. Field deployment and recovery of turbulence measuring instruments. Data analysis from turbulence measurements.
Requisites: Prerequisite, MASC 506 or 560; permission of the instructor for students lacking the prerequisite.
Gen Ed: PL, QI.
Grading status: Letter grade.

MASC 563. Descriptive Physical Oceanography. 3 Credits.
Observed structure of the large-scale and mesoscale ocean circulation and its variability, based on modern observations. In-situ and remote sensing techniques, hydrographic structure, circulation patterns, ocean-atmosphere interactions.
Requisites: Prerequisite, MASC 506; permission of the instructor for students lacking the prerequisite.
Gen Ed: PL.
Grading status: Letter grade
Same as: GEOL 563.

Graduate-level Courses

MASC 705. How to Give a Seminar. 1 Credit.
Discussion of methods and strategies for giving effective technical presentations. Topics will include seminar structure, use of visual aids, personal and professional presentation, and responding to questions.
Grading status: Letter grade.

MASC 706. Student Interdisciplinary Seminar. 1 Credit.
Marine Sciences graduate students will prepare and present a seminar on an interdisciplinary topic from contemporary research in marine systems.
Requisites: Prerequisite, MASC 705.
Grading status: Letter grade.

MASC 730. Advanced Coastal Environmental Change. 3 Credits.
Focuses on biological-physical couplings that shape coastal environments (i.e. coastal 'ecomorphodynamics') and determine how these environments change with climate and land use. Environments include: barrier islands, open ocean coastlines, and tidal wetlands. Grading based on presentations, participation, and a research proposal.
Requisites: Prerequisites, GEOL 417, 502, or 503; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: GEOL 710, ENEC 710.

MASC 741. Seminar in Marine Biology. 2 Credits.
Discussion of selected literature in the field of marine biology, ecology, and evolution.
Grading status: Letter grade.

MASC 742. Molecular Population Biology. 4 Credits.
Hands-on training, experience, and discussion of the application of molecular genetic tools to questions of ecology, evolution, systematics, and conservation.
Requisites: Prerequisite, BIOL 471; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: BIOL 758.

MASC 750. Modeling Diagenetic Processes. 3 Credits.
An introduction to the theory and application of modeling biogeochemical processes in sediments. Diagenetic theory, numerical techniques, and examples of recently developed sediment models. Three lecture hours a week.
Requisites: Prerequisite, MASC 480; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

MASC 761. Geophysical Fluid Dynamics. 3 Credits.
Momentum equations in a rotating reference frame, vorticity, potential vorticity, circulation, the shallow water model, Rossby and Kelvin waves, the Ekman layer. Three lecture hours a week.
Requisites: Prerequisite, MASC 560 or MATH 528; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

MASC 762. Ocean Circulation Theory. 3 Credits.
Theories, models of large-scale dynamics of ocean circulation. Potential vorticity, quasi-geostrophy, instabilities.
Requisites: Prerequisite, MASC 506 or 560, or MATH 529; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

MASC 763. Coastal Circulation. 3 Credits.
Dynamics of the coastal ocean. Shallow water equations, boundary layer and long wave theory, wind driven circulation, fronts, estuaries.
Requisites: Prerequisite, MASC 506 or 560, or MATH 529; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

MASC 764. Ocean Circulation Modeling. 3 Credits.
Computational methods used in modeling oceanic circulation. Numerical solution of equations governing mass, momentum, and energy equations.
Requisites: Prerequisite, MASC 506 or MATH 529; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

MASC 765. Small-Scale Physics of the Ocean. 3 Credits.
Physics of sub-mesoscale processes in the ocean. Nonequilibrium thermodynamics. Air-sea interaction. Mixing in the ocean boundary layer, convection, double diffusion. Near-inertial and high frequency internal waves. Three lecture hours a week.
Requisites: Prerequisites, MASC 506 and 560.
Grading status: Letter grade.

MASC 781. Numerical ODE/PDE, I. 3 Credits.
Single, multistep methods for ODEs: stability regions, the root condition; stiff systems, backward difference formulas; two-point BVPs; stability theory; finite difference methods for linear advection diffusion equations.
Requisites: Prerequisites, MATH 661 and 662.
Grading status: Letter grade
Same as: MATH 761, ENVR 761.

MASC 782. Numerical ODE/PDE, II. 3 Credits.
Elliptic equation methods (finite differences, elements, integral equations); hyperbolic conservation law methods (Lax-Fiedrich, characteristics, entropy condition, shock tracking/capturing); spectral, pseudo-spectral methods; particle methods, fast summation, fast multipole/vortex methods.
Requisites: Prerequisite, MATH 761.
Grading status: Letter grade
Same as: MATH 762, ENVR 762.

MASC 783. Mathematical Modeling I. 3 Credits.
Nondimensionalization and identification of leading order physical effects with respect to relevant scales and phenomena; derivation of classical models of fluid mechanics (lubrication, slender filament, thin films, Stokes flow); derivation of weakly nonlinear envelope equations. Fall.
Requisites: Prerequisites, MATH 661, 662, 668, and 669.
Grading status: Letter grade
Same as: MATH 768, ENVR 763.

MASC 784. Mathematical Modeling II. 3 Credits.
Current models in science and technology: topics ranging from material science applications (e.g., flow of polymers and LCPs); geophysical applications (e.g., ocean circulation, quasi-geostrophic models, atmospheric vortices).
Requisites: Prerequisites, MATH 661, 662, 668, and 669.
Grading status: Letter grade
Same as: MATH 769, ENVR 764.

MASC 799. Experimental Graduate. 1-9 Credits.
Experimental graduate level courses as offered by the Department.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 1 total completions.
Grading status: Letter grade.

MASC 893. Special Topics in Marine Geology. 1-9 Credits.
Special topics courses in Marine Geology as offered by Department.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 1 total completions.
Grading status: Letter grade.

MASC 894. Special Topics in Biological Oceanography. 1-9 Credits.
Special topics courses in Biological Oceanography as offered by Department.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 1 total completions.
Grading status: Letter grade.

MASC 895. Special Topics in Physical Oceanography. 1-9 Credits.
Special topics courses in Physical Oceanography as offered by Department.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 1 total completions.
Grading status: Letter grade.

MASC 896. Special Topics in Chemical Oceanography. 1-9 Credits.
Special topics courses in Chemical Oceanography as offered by Department.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 1 total completions.
Grading status: Letter grade.

MASC 897. Special Topics in Marine Sciences. 1-9 Credits.
Special topics courses in Marine Sciences as offered by Department.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 1 total completions.
Grading status: Letter grade.

MASC 940. Research in Marine Sciences. 2-21 Credits.

MASC 993. Master's Research and Thesis. 3 Credits.

MASC 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF MATERNAL AND CHILD HEALTH (GRAD)

Contact Information

Department of Maternal and Child Health
Visit Program Website (http://www.sph.unc.edu/mhch)

Carolyn Halpern, Chair

The Gillings School's Department of Maternal and Child Health was founded in 1950 and is one of the world's leading academic departments for research, teaching and practice.

We are dedicated to improving the health of women, children, and families — domestically and globally. Our teaching program provides students with broad exposure to maternal and child health population needs and priorities, as well as with the skills to become leaders of tomorrow. Our faculty members represent a rich mix of academic backgrounds and interests and contribute their expertise and leadership in a wide range of disciplines. We invite you to join us as we embark upon an exciting new year of scholarship, leadership, and service.

Degrees and Programs

Master of Public Health (M.P.H.) Programs

Master of Public Health (M.P.H. Residential) (https://sph.unc.edu/application-steps/?program=mch-MPH-r)
The Master of Public Health (M.P.H.) concentration in Maternal, Child and Family Health (MCFH) focuses on the determinants, mechanisms, and systems that promote and maintain the health and safety of women, children, and their families to enhance the future health and welfare of society. Our field is population-based and interdisciplinary, and we provide a strong foundation of knowledge, frameworks, and methods for program monitoring, process/impact evaluation, and program planning and implementation. As graduates, students will be equipped with a highly adaptable toolkit and prepared to lead interdisciplinary efforts that require multiple perspectives and competencies in domestic and global contexts. The degree is designed for students who have a bachelor's degree and is intended for applicants who plan a practice career. It requires 42 credit hours, entailing SPH integrated core courses, MCFH core courses, and three elective courses.

Dual Master of Public Health and Master of Social Work (M.P.H.-M.S.W. Residential) (https://sph.unc.edu/application-steps/?program=mch-MPH-msw-r)
A cooperative arrangement between MCH and the School of Social Work (SSW): Provides knowledge of the major factors associated with maternal health and child health, principles and methods for improving the health of mothers and children, and principles and methods of program planning, management, consultation, and policy analysis in the U.S. and in international settings. The program provides skills related to program planning, implementation, and evaluation; limited scientific investigation; computer applications; interdisciplinary functioning; and consultation as they relate to maternal and child health. The program objective is to develop a public health perspective consistent with population-based strategies for solving community health problems, addressing the responsibility of government and the contributions of scientific investigation and the interdisciplinary approach.

Other Master's (M.H.A., M.S., M.S.C.R., M.S.E.E., M.S.P.H.) Programs

Master of Science in Public Health (M.S.P.H. Residential) (https://sph.unc.edu/application-steps/?program=mch-msph-r)
The terminal M.S.P.H. degree is an option only for students who have, or are expected to have, a terminal health professional or allied health professional degree. Students, for example, who are currently in the Dual Degree program in Social Work and Public Health; medical students, residents, or fellows; master's level nurses (or equivalent), or graduate students in nursing; social workers; therapists; or physicians may choose this option. The degree is intended for those who, by virtue of their prior health training, would benefit from more specialization, and who must complete their master's degree in one year or less. It requires 42 credit hours, entailing five SPH integrated core courses, two MCH core courses, and two MCH skills courses. The program normally requires two semesters and two summers to complete, including six credits (equivalent to five and a half weeks of full-time work) of field training.

Dual Master of Science in Public Health and Master of Social Work (M.S.P.H.-M.S.W. Residential) (https://sph.unc.edu/application-steps/?program=mch-msph-msw-r)
A cooperative arrangement between MCH and the School of Social Work (SSW): Provides students with grounding in the major factors associated with maternal health and child health, principles and methods for improving the health of mothers and children, and principles and methods of program planning, management, consultation, and policy analysis in the U.S. and in international settings. The program provides skills related to program planning, implementation and evaluation; limited scientific investigation; computer applications; interdisciplinary functioning; and consultation as they relate to maternal and child health. The program aims to develop a public health perspective consistent with population-based strategies for solving community health problems, addressing the responsibility of government and the contributions of scientific investigation and the interdisciplinary approach.

Master's-to-Doctoral Programs

Master's-to-Doctoral Program (M.S.P.H.-Ph.D. Residential) (https://sph.unc.edu/application-steps/?program=mch-msph-phd-r)
This track is designed for students who have a bachelor's degree but have not yet completed a master's degree. Students in this degree track will earn the Master of Science in Public Health (M.S.P.H.) degree before completing the requirements to earn the Ph.D. Requirements for the Ph.D. and M.S.P.H. are the same as those listed in the descriptions of those two degrees. As with the original MCH Ph.D. track that requires a master's degree for eligibility, the Master's-to-Doctorate (MtD) track is intended for applicants who plan a research career, whether in basic or applied research, that is focused on the MCH population.

Master's-to-Doctoral Program (M.P.H.-Ph.D. Residential) (https://sph.unc.edu/application-steps/?program=mch-MPH-phd-r)
This track is designed for students who have a bachelor's degree but have not yet completed a master's degree. Students in this degree track will earn the Master of Public Health (M.P.H.) degree before completing the requirements to earn the Ph.D. Requirements for the Ph.D. and M.P.H. are the same as those listed in the descriptions of those two degrees. As with the original MCH Ph.D. track that requires a master's degree for eligibility, the Master's-to-Doctorate (MtD) track is intended for applicants who plan a research career, whether in basic or applied research, that is focused on the MCH population.

Dual Master of Public Health and Doctor of Pharmacy (M.P.H.-Pharm.D. Residential) (https://sph.unc.edu/application-steps/?program=mch-mph-pharmd-r)
The objective of the Pharm.D./M.P.H. dual degree is to prepare students for an ever-expanding pharmacist role that increasingly requires proficiency in medication therapy management and health promotion on an individual patient, regional, state, and national level. A public health pharmacist is expected to use their pharmacotherapeutic knowledge and skills, in combination with their public health skills, to "plan, organize, manage, and perform drug-related activities within a specific public health focus or within a public health setting.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Julie Daniels (71), Epidemiology of Reproductive Health, Infant and Child Growth and Development, Autism and Developmental Disabilities, Environmental Exposures Related to Reproductive and Developmental Outcomes.
Carolyn Halpern (32), Adolescent Health and Development, Sexual Health and Research, Methodology, LGBT Health.
Sandra L. Martin (40), Violence, Behavioral and Emotional Health of Children and Families, Substance Use, Prison Health.
Herbert Peterson (01), International Health, Reproductive Health, Maternal and Newborn Health, including Family Planning, Implementation Science.
Rohit Ramaswamy, Methods and Tools for Implementation of Global Health Programs, Quality Improvement of Health Systems, Technology for Workforce Capacity Building
John Thorp Jr., Preterm Birth, Birth Asphyxia, Episiotomy, Community Child Health.

Clinical Professor

Pierre Barker, Improving the Reliability of Effective Health Programs in Europe, Africa, the Middle East, Australasia, and Latin America.

Research Professor

Ilene Speizer (15), Unintended Pregnancy Prevention, Evaluation of Reproductive Health Programs in Developing Countries, Adolescent Health, Male/Couple Involvement, Gender-Based Violence.

Associate Professors

Gustavo Angeles (75), Health Economics, Research Methods, Program Evaluation, International Health
Dorothy Cilenti (36), Public Health Departments, Systems Development
Sian Curtis (49), Contraceptive Use Dynamics, International Reproductive and Maternal Health, Monitoring and Evaluation Methods for Population and Health Programs, Multilevel Models, Statistical Demography
Claudia Fernandez (31), Leadership Development, Leadership Issues in Healthcare and Related Fields
Sherri Green (25), Maternal Health, Public Health Leadership, Substance Abuse, Violence Prevention
Heidi Reynolds, Health Information Systems, Evaluation
Kavita Singh Ongechi (10), Child Survival, Displaced Populations, HIV/AIDS Orphans
Alison Stuebe (69), Breastfeeding, Maternal Depression, Lactation, Preterm Birth

Clinical Associate Professor

Thomas Ivester, Critical Care Obstetrics, Health Care Improvement, High-Risk Pregnancy

Assistant Professors

Janine Barden-O'Fallon (33), Family Planning, Reproductive Health, International Health
Shoshana Goldberg, LGBT Health, Adolescent Health, Sexual and Reproductive Health
Dana Hagele, Pediatrics, Child Abuse Pediatrics, Trauma-Informed Care, Mental Health
Aunchalee Palmquist (45), Breastfeeding, Medical Anthropology, Health Disparities
Angela Parcesepe (48), Violence, Mental Health Interventions, HIV Risk
Tamar Ringel-Kulka (41), Functional Foods, Probiotics, Obesity, Breastfeeding, Children and Adolescents Health Promotion and Disease Prevention
Meghan Shanahan (67), Diagnosis and Treatment of Child Abuse and Neglect, Program Evaluations, Prescription Drug Overdose
Catherine Sullivan (72), Breastfeeding, Lactation, Nutrition Education and Support Services
Christine Tucker, Reproductive Health, Qualitative and Quantitative Research
Kat Tumlinson (06), Population and Global Reproductive Health, Family Planning, Quantitative Methodologies
Bharathi Zvara (55), Parent-Child Relationships, Childhood Trauma

Clinical Assistant Professor

Jon M. Hussey (34), Child Abuse and Neglect, Child and Adolescent Health, Injury Prevention, Population

Adjunct Professors

Bruce Barron, Mathematical Models of Biological Systems
Jose Belizan, International Maternal and Child Health, Maternal Mortality and Morbidity
Pouru Bhiwandi, Obstetrics and Gynecology, International Women's Health, Maternal and Child Health
Dorothy Browne, High-Risk Behaviors (Drugs, HIV/AIDS, Sexual Behavior, etc.) Among African-American Adolescents and Adults
Martha Carlough, Maternal and Child Health
Marcia Herman-Giddens, Pediatrics, Public Health, Ticks and Tick-Borne Infections
Roy Jacobstein, Family Planning and International Health
Marian Johnson-Thompson, Microbiology, Environmental Health
Michael Kafrissen, Aging, Women's Health
Baker Maggwa, Sexual and Reproductive Health, Operations/Implementation Research
Robert Meyer, Birth Defects/Perinatal Epidemiology
Krista Perreira, Immigrant Health, Reproductive Health, Mental Health, Cardiovascular Health, Public Policy Analysis
Doris Rouse, Maternal and Child Health, Global Health, Public Private Partnerships
Joseph Telfair, CBPR/Evaluation, Heatlh Equity/Disparaties, Multi-Cultural, Global Health, Public Health Practice-Based Leadership, CSHCN

Adjunct Associate Professors

Joy Baumgartner, Maternal and Child Health, Global Mental Health, Health Services Research
Mary Jane Benson, Abortion

Deborah Billings, Adolescent Health, Abortion Care, Gender-Based Violence/Sexual Violence
Shelah Bloom, Reproductive Health, Gender-Based Violence in Global Context
Holly Burke, Family Planning, Contraception, HIV Prevention, Youth Sexual and Reproductive Health, Program Evaluation
Abigail English, Adolescent Health, Policy and Law, Human Trafficking
Alfredo Fort, M&E, Survey Planning, Sampling, Conduct/Analysis, Theories of Change, Results Frameworks/Indicators, Mixed Methods
Jean Fotso, MNCH/FP/Nutrition
Phillip Graham, Substance Abuse and Violence Prevention; Program Evaluation
Nathalie Kapp, Sexual and Reporductive Health, Most Specifically in the Areas of Contraception and Abortion
Jack Leiss, Children's Environmental Health, Preinatal Epidemiology
Gerri Mattson, Child/Adolescent Preventive Health, Social Determinants of Health, Development, Foster Care, Children Special Health Care
Cathy Melvin, Behavioral Health, Dissemination and Implementation Science
Robert Murphy, Child Maltreatment, Mental Health Services for Child Trauma Victims
Sachiko Ozawa, Behavioral Health, Dissemination and Implementation Science
Lucy Siegel, Health Care Access, Quality, Effecitveness and Cost
Paige Smith, Breastfeedinng, Violence Prevention, Women's Health
David Sokal, Family Planning, Promoting Research on New Male Methods
John Stanback, International Family Health
Elizabeth Tolley, Contraceptive and Reproductive Technologies, Pregnancy in Microcide Clinical Trial Research
Nancy Williamson, Monitoring and Evaluation, MCH Programs, Qualitative Research, International Public Health
Adam Zolotor, Child Maltreatment, State Health Policy

Adjunct Assistant Professors

Kathryn Anderson, Global Health, Abortion, Contraception, Reproductive Health
Dalia Brahmi, Sexual and Reproductive Health (Safe Abortion and Contraception), Primary Care
Amy Bryant, Family Planning, Obstetrics and Gynecology
Cecilia Casanueva, Child Abuse and Neglect
Cynthia Cassell, Birth Defects and Developmental Disabilities
Caroline Doherty, Grant Review, Grant Review Process Management
Deborah Gibbs, Domestic Child Human Trafficking
Joumana Haidar, Implementation Science
Elaine Hart-Brothers, Racial Health Disparities, Health Education for African Americans
Dilshad Jaff, Public Health
Nicole Kahn, Adolescent Sexual and Reproductive Health; Disability; the Life Course; Child Development; Teaching Skills/Course Development
Anu Kumar, Anthropology, Maternal and Child Health
Elizabeth Mcclure, Perinatal Epidemiology
Kara Mcgee, HIV Medicine, Diagnosis/Treatment of Acute HIV Infection, Development of HIV Specialty Program for Nurse Practitioners
Priya Nanda, Population Reproductive Health and Gender Equality
Sandra Naoom, Implementation Science
Constance Newman, Gender and Sexual and Reproductive Health, Gender-Based Violence in the Workforce
Mclean Pollock, Adolescents and Young Adults, Substance Abuse, Violence Against Women, Child Maltreatment
Catherine Rohweder, Dissemination and Implementation Science
Catherine Sanford, Injury Prevention, Cardiovascular Disease Epidemiology
Nana Twum-Danso, Quality Improvement, Large-Scale Change, Community Health and Maternal, Newborn and Child Health
Sarah Verbiest, Maternal and Infant Care, Social Work
Yudan Wang, Child Development, Quantitative Research Methods
Andra Wilkinson, Adolescent Health Issues, Program Implementation and Outcomes
Jennifer Yourkavitch, Equity, HIV and Infectious Disease, Health Systems and Service Delivery, Data Quality, Infant Feeding; Domestic and Global

Faculty Emeriti

Trude Bennett
Anita M. Farel
Jonathan B. Kotch
Lewis Margolis
Diane Rowley

MHCH

Advanced Undergraduate and Graduate-level Courses

MHCH 605. Survey Course on Breastfeeding and Public Health. 3 Credits.
This survey course will briefly cover the principal topics in this broad field of knowledge, including domestic and global issues.
Grading status: Letter grade.

MHCH 610. Issues in Maternal and Child Health. 3 Credits.
Permission of the instructor. For students outside the department of MCH who desire a survey of current issues and programs in maternal and child health. Three lecture hours per week.
Grading status: Letter grade.

MHCH 611. Nutrition across the Life Cycle. 3 Credits.
This course covers nutrition during the life cycle. Units include women during preconception, pregnancy, and lactation; infancy; childhood; adolescence; and older adults (65+). Nutrient and energy needs, assessment of nutritional status, and cultural and socioeconomic barriers are discussed for each phase.
Requisites: Prerequisite, NUTR 400.
Grading status: Letter grade
Same as: NUTR 611.

MHCH 625. Injury as a Public Health Problem. 3 Credits.
This course examines unintentional injuries from a public health perspective. The course covers core concepts in injury prevention and control, including the epidemiology of unintentional injury, prevention strategies, behavioral models, child and adolescent injury, messaging framing, the Haddon matrix, and injury surveillance.
Requisites: Corequisite, EPID 600.
Grading status: Letter grade
Same as: EPID 625, HBEH 625.

MHCH 626. Violence as a Public Health Problem. 3 Credits.
This course covers core concepts in violence prevention and control, including the epidemiology of violence, prevention strategies for inter-personal and intra-personal violence, behavioral models that describe power structures that reinforce personal and societal factors affecting self-harm and violence towards others, and violence directed towards children and adolescents.
Requisites: Prerequisite, EPID 625.
Grading status: Letter grade
Same as: EPID 626, HBEH 626.

MHCH 664. Globalization and Health. 3 Credits.
Globalization--its economic, environmental, political, technological, institutional, and sociocultural dimensions--historically and currently contributes to beneficial and adverse effects on population, community, and family and individual health.
Grading status: Letter grade
Same as: HPM 664.

MHCH 665. Introduction to Racial and Ethnic Health Disparities. 1 Credit.
Eliminating health disparities is a national goal for improving the health of Americans. Little to no progress has been made on eliminating disparities among racial/ethnic subpopulations compared to the population of the United States. This course treats basic concepts about the origins of and contributing factors for health disparities.
Grading status: Letter grade.

MHCH 680. Global Sexual and Reproductive Health. 1 Credit.
Featuring international experts from UNC-Chapel Hill and Triangle-based nongovernmental organizations, this course will offer a series of lectures, panel discussions, and debates to inform students' critical thinking on key public health issues in global sexual and reproductive health.
Grading status: Letter grade.

MHCH 685. Human Sexuality. 1 Credit.
Through lectures and panel discussions this course will use a life span framework to examine selected aspects of sexual development, including perspectives on sexuality; the physical self; sexual attraction, behavior, and relationships; and the implications of these factors for physical and mental health. No prerequisites; all students are welcome.
Grading status: Letter grade.

MHCH 690. Special Topics in Maternal Health and Child Health. 1-3 Credits.
Special topics in maternal health and child health. Content will vary from semester to semester.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

Graduate-level Courses

MHCH 700. MHCH Planning and Evaluation. 3 Credits.
Permission of the instructor for nonmajors. Limited to residential students in public health. This course will familiarize students with basic concepts and methodologies required for effective public health program planning and evaluation in a variety of settings, both domestic and global. The majority of this course is taught online.
Grading status: Letter grade
Same as: PUBH 700.

MHCH 701. Foundations of Maternal and Child Health I. 3 Credits.
Permission of the instructor for nonmajors. This course introduces the major issues affecting the health and well-being of women during the reproductive years, infants, children, and adolescents in domestic and international settings. First semester of a two-semester course.
Grading status: Letter grade.

MHCH 702. Foundations of Maternal and Child Health II. 2 Credits.
Permission of the instructor for nonmajors. Second part of a two-part course that introduces the major issues affecting the health and well-being of women during the reproductive years, infants, children and adolescents in domestic and international settings. Second semester of a two-semester course.
Requisites: Prerequisite, MHCH 701.
Grading status: Letter grade.

MHCH 704. Critical Review of an Infant Feeding Issue. 3 Credits.
This independent study will include selection of a research area that would allow preparation of a coauthored paper for peer-review publication on an approved subject related to infant and young child feeding and care and associated maternal health and nutrition issues.
Grading status: Letter grade.

MHCH 705. International Family Planning. 3 Credits.
Required preparation, graduate study in MHCH. Permission of the instructor. Analysis of the family planning movement, its policies, operations and research, with emphasis on developing countries. Three lecture hours a week.
Grading status: Letter grade.

MHCH 712. Program Assessment in Maternal and Child Health. 3 Credits.
Permission of the instructor for nonmajors. Offers an opportunity for students to explore in greater depth a selected MCH practice topic. Students will learn how to provide consultation about a selected program activity.
Grading status: Letter grade.

MHCH 713. Research Methods in Maternal and Child Health. 3 Credits.
Permission of the instructor for nonmajors. The art and science of MCH research, with an emphasis on applied survey research. Student groups will design and carry out a small study, and present their findings in a poster presentation. Focuses on assessment of MCH population characteristics, secondary data analysis, and the evaluation of MCH programs. A practicum-based course. Three lecture hours per week.
Grading status: Letter grade.

MHCH 713L. Research and Evaluation Methods in Maternal and Child Health Lab. 1 Credit.
Permission of the instructor for nonmajors. The MHCH 713 lab, which is a companion course to MHCH 713, introduces students to statistical analysis using Stata. One hour and 15 minutes of lab per week.
Requisites: Corequisite, MHCH 713.
Grading status: Letter grade.

MHCH 715. Maternal and Child Health Management. 3 Credits.
Permission of the instructor for nonmajors. Students become familiar with organizational processes, management principles, and tools required for effective management of health programs and facilities. A variety of learning techniques will be used. Three lecture hours a week.
Grading status: Letter grade.

MHCH 716. International Family Planning and Reproductive Health. 3 Credits.
Permission of the instructor for nonmajors. Course provides overview of critical issues including major theoretical frameworks, patterns and trends over time, and overview of history of family planning and reproductive health policy development. Three lecture hours per week.
Grading status: Letter grade.

MHCH 717. Field Training in Maternal and Child Health. 2-8 Credits.
A faculty-supervised field experience in maternal and child health research, community practice, program planning, and evaluation. Students are supervised on-site by department-approved field instructor. An additional field fee of $350 is assessed. Minimum of six weeks.
Grading status: Letter grade.

MHCH 718. Concurrent Field Training in Maternal and Child Health. 1-5 Credits.
MHCH majors only. An elective, faculty-supervised field experience in maternal and child health research, community practice, program planning, and evaluation. Students are supervised on-site by department-approved field instructor. Students choosing this elective are not exempt from MHCH 717. Variable number of hours.
Grading status: Letter grade.

MHCH 720. Services for Children with Chronic Conditions. 3 Credits.
Permission of the instructor. This course focuses on the design, organization, and delivery of services for children with special needs and their families, and examines current program development and public policies. Participants analyze the range of services needed by these children.
Grading status: Letter grade.

MHCH 722. Global Maternal and Child Health. 3 Credits.
This course covers the main causes of maternal and under-five morbidity and mortality in developing countries and also the interventions, policies, and research which address these causes. Emphasis is placed on both distal and proximate determinants, measurement and indicators, and conceptual frameworks.
Grading status: Letter grade.

MHCH 723. Introduction to Monitoring and Evaluation of Global Health Programs. 3 Credits.
Permission of the instructor for nonmajors. This course provides the students with the basic concepts and methodologies needed to monitor and evaluate programs of global health programs. Course covers M&E systems; conceptual frameworks/logic models; indicators; information sources; evaluation designs and related topics for health programs in developing country settings.
Grading status: Letter grade.

MHCH 724. Abortion Care and Policy. 2 Credits.
This course will provide an overview of the critical issues in abortion care and policy, both in the US and globally. We will cover the major theoretical frameworks defining abortion care and policy, and the epidemiology of abortion globally and nationally.
Grading status: Letter grade.

MHCH 725. Injury as a Public Health Problem. 3 Credits.
This course considers the causes and consequences of traumatic injury within developmental, social, and economic contexts, and dilemma in injury prevention. Injuries associated with transportation, violence, and the home and occupational environments are included. Three lecture hours per week.
Requisites: Prerequisite, EPID 600.
Grading status: Letter grade
Same as: HBEH 725.

MHCH 726. Adolescent Health. 3 Credits.
Topics covered include the epidemiology of health problems, developmental issues, health services, and psychosocial influences on adolescent problem behaviors. Course materials are useful for research generation and practical application. Three seminar hours per week.
Grading status: Letter grade
Same as: HBEH 726.

MHCH 728. Introduction to Implementation Research and Practice in Maternal, Child and Family Health. 3 Credits.
Permission of the instructor for nonmajors. Implementation research and practice addresses the gap between the development of innovations in public health and their delivery in routine practice. Course provides an overview of core theories/methods in implementation research and practice plus implementation determinants and strategies at the intervention, individual, organizational, and policy levels.
Grading status: Letter grade.

MHCH 729. Implementation Science for Global Maternal and Child Health. 3 Credits.
This course is an introduction to implementation science with an emphasis on its application for global MCH. The course will highlight current challenges in global MCH and the role of IS in addressing them.
Grading status: Letter grade.

MHCH 730. Reproductive Health Policy. 3 Credits.
Permission of the instructor. Participants examine forces that shape social policy relating to reproduction and differential impact of policy based on age and other factors. Focus on global controversies in reproduction/reproductive health services in context of human/women's rights. Three lecture hours a week.
Grading status: Letter grade.

MHCH 732. Gender-Based Violence. 3 Credits.
The MHCH Gender-Based Violence (GBV) course provides a forum for students to explore contemporary issues in GBV from both a research and practice standpoint. Students will be introduced to a myriad of domestic and international GBV issues, from intimate partner violence and campus sexual assault to sex trafficking.
Grading status: Letter grade.

MHCH 735. Clinical Support for Breastfeeding. 3 Credits.
Required preparation, students must have a master's or clinical four-year degree, or be in such a degree program to be enrolled in this course. This clinical course is structured to provide supervised breastfeeding support education in the context of clinical lactation services and public health practice.
Grading status: Letter grade.

MHCH 740. Problems in Maternal and Child Health. 1-3 Credits.
Prerequisites to be arranged with departmental faculty in each individual case. Two to six hours a week.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

MHCH 745. Applied Methods for Health Transformation Implementation in MCH. 1-3 Credits.
This course is designed to integrate the theory, research literature, and evidence-supported practices that promote population health outcomes in MCH. The passage of the Patient Protection and Affordable Care Act (ACA) offers opportunities for improving public health systems, health care financing and delivery, and health outcomes for MCH populations.
Grading status: Letter grade.

MHCH 753. Violence Against Women. 3 Credits.
Permission of the instructor for nonmajors. Violence against women is examined as a public health problem. Areas investigated include definitional issues, prevalence of the problem, risk factors and outcomes, and community and medical interventions.
Grading status: Letter grade.

MHCH 756. Addressing Health Inequalities in the United States. 3 Credits.
Disparities in morbidity/mortality in sub-populations continue compared to other United States populations. Course explores contributors to inequalities and identifies strategies to counterbalance contributors to correct inequalities using public health resources.
Grading status: Letter grade
Same as: PUBH 756.

MHCH 757. Special Child Populations. 3 Credits.
Course focuses on two populations that warrant special attention. By examining these populations in one course, students are exposed to a range of contemporary issues that cut across childhood development.
Grading status: Letter grade.

MHCH 760. Breastfeeding, Public Health, and Feminism. 1 Credit.
A transdisciplinary effort to address feminist perspectives and to emphasize the impact that gendered power dynamics and structured social stratification might offer for public health policies, priorities, and approaches related to breastfeeding. A series of public health constructs currently engaged by breastfeeding programs and policies provide a framework for discussion.
Grading status: Letter grade.

MHCH 765. Clinical Support for Breastfeeding. 3 Credits.
Master's or clinical four-year degree required. This two-semester clinical course is structured to provide supervised breastfeeding support education in the context of clinical lactation services and public health practice.
Grading status: Letter grade.

MHCH 766. Clinical Support for Breastfeeding II. 3 Credits.
Master's or clinical four-year degree required. This two-semester clinical course is structured to provide supervised breastfeeding support education in the context of clinical lactation services and public health practice.
Requisites: Prerequisite, MHCH 765.
Grading status: Letter grade.

MHCH 790. The Leadership Assessment Workshop. 2 Credits.
Intensive retreat program that introduces students to leadership theory as applied to MCH-Public Health issues. Course will focus on understanding self and others, building organizational culture, and applying leadership theory to MCH issues, among other issues.
Grading status: Letter grade
Same as: PUBH 790.

MHCH 795. Leadership in Maternal and Child Health. 3 Credits.
Permission of the instructor for nonmajors. Course is designed to integrate the theory, research literature, and evidence-supported practices related to leadership in maternal and child health. Students will consider each of the twelve core competencies within the spheres of influence that leaders experience as they develop. Students will hear from public health professionals in the field, consider perspectives of various stakeholders and examine/apply new skills.
Grading status: Letter grade.

MHCH 801. Doctoral Research Seminar: Systematic Review of the Literature & Current Findings from the Field. 3 Credits.
This seminar explores the origins of and developments in major maternal and child health policies and programs in order to understand their effects on the health of mothers and children.
Requisites: Prerequisites, MHCH 701 and 702.
Grading status: Letter grade.

MHCH 802. Doctoral Teaching Skills Seminar. 1 Credit.
The goal of this 1-credit hour seminar is for participants to examine and apply the strategies and concepts underlying effective teaching in small groups and the lecture hall. Doctoral students will consider the characteristics of effective teaching and explore how to incorporate these characteristics into their own pedagogy.
Grading status: Letter grade.

MHCH 803. Doctoral Research Skills Colloquium. 1 Credit.
Enrollment in the MCH doctoral program or permission of the instructor for nonmajors and master's students. This seminar is the second semester of a one-year research skills colloquium for all new doctoral students. The course addresses research, problem definition, proposal design, and development. One-hour seminar a week.
Grading status: Letter grade.

MHCH 816. Applied Quality Improvement Methods for Healthcare and Public Health. 3 Credits.
The course objective is to develop, implement, and test a solution to improve health care or public health delivery, using a model called the Model for Improvement (or MFI). The model uses three questions to scope the improvement project and four steps, Plan-Do-Check-Act, to implement and test solutions.
Grading status: Letter grade
Same as: PUBH 716, HPM 716.

MHCH 817. Gillings Global Implementation Lab. 2 Credits.
Interdisciplinary, field-based graduate course for teams of students to apply knowledge and experience to design/implement systematic solutions to improve the delivery of public health services in partnership with organizations around the world. Students develop general insights, learn effective implementation practices, and acquire evidence-based applied experience.
Requisites: Corequisite, PUBH 716.
Grading status: Letter grade
Same as: PUBH 717, HPM 717.

MHCH 840. Maternal and Child Health Doctoral Internship. 1 Credit.
Enrollment in MCH doctoral program required. MCH internship to enhance doctoral training in areas of: Section 1: Teaching; Section 2: Practice; and Section 3: Research.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

MHCH 851. Reproductive and Perinatal Epidemiology. 3 Credits.
Equivalent experience for students lacking the co-requisites. Epidemiology of reproductive and perinatal health outcomes, including infertility, fetal loss, preterm birth, birthweight, congenital malformations, and infant mortality. Includes current knowledge regarding epidemiology of these outcomes and discussion of methodologic issues. Three lecture hours per week.
Requisites: Co-requisites, BIOS 600 and EPID 600;
Grading status: Letter grade
Same as: EPID 851.

MHCH 853. Advanced Topics in Perinatal and Pediatric Epidemiology. 2 Credits.
Critical review of current topics in, and methods for, perinatal and pediatric epidemiology.
Requisites: Prerequisites, EPID 710 and 851; Permission of the instructor for master's level students.
Grading status: Letter grade
Same as: EPID 853.

MHCH 859. THEORETICAL PERSPECTIVES ON MATERNAL AND CHILD HEALTH. 3 Credits.
A survey of theoretical models used in MCH research and program development, and how those models are used to guide the formulation of questions, hypothesis testing, and evaluation. Fall.
Requisites: Prerequisites, doctoral students, permission of the instructor.
Grading status: Letter grade.

MHCH 860. Conceptualization, Design, and Measurement. 3 Credits.
The course follows the research process from the formulation of a research question and the design of a research methodology to the addressing of the question through the design of an appropriate analysis strategy. Three lecture hours a week.
Requisites: Prerequisite, MHCH 859; Permission of the instructor for nonmajors and master's students.
Grading status: Letter grade.

MHCH 862. Program Impact Evaluation. 3 Credits.
Required preparation, knowledge of Stata or SAS; proficiency in inferential statistics and multiple regression analysis. Instructor permission required for non-second year MCH doctoral students. Program impact evaluation analytic skills seminar. Topics: selectivity, research designs, instrumental variables, difference-in-differences, fixed and random effects, regression discontinuity, matching, and selection models.
Grading status: Letter grade.

MHCH 885. Health Services/Health Policy Research Methods II. 3 Credits.
An introduction to basic research methods central to maternal and child health policy, including an introduction to basic components of the research process such as developing research questions and conceptual models, and overviews of research designs, quantitative and qualitative analytical methods, primary data collection, and secondary data analysis.
Grading status: Letter grade.

MHCH 886. Health Services/Health Policy Research Methods III. 3 Credits.
A modular course covering applications of selected methods covered in 885. Illustrative applications include implementation science, comparative effectiveness research, issues in mixed-method research, feasibility studies, and the translation of research to policy and practice. Applications are framed in terms of issues related to the MCH population.
Requisites: Prerequisites, MHCH 884 and 885.
Grading status: Letter grade.

MHCH 890. Special Topics in Maternal and Child Health. 1-3 Credits.
Special topics in Maternal and Child Health for graduate students only. Content will vary semester to semester.
Repeat rules: May be repeated for credit. 3 total credits. 3 total completions.
Grading status: Letter grade.

MHCH 892. Interdisciplinary Seminar in Health Disparities. 1 Credit.
This seminar will provide an opportunity for students to synthesize knowledge across disciplines and to develop an interdisciplinary approach to addressing their identified health disparities research topic.
Requisites: Prerequisite, MHCH 756.
Grading status: Letter grade
Same as: EPID 892.

MHCH 992. Master's (Non-Thesis). 3 Credits.

MHCH 994. Doctoral Research and Dissertation. 3 Credits.

Master of Public Health (M.P.H.) Maternal, Child, and Family Health Concentration Description

The Maternal, Child, and Family Health concentration (https://sph.unc.edu/resource-pages/master-of-public-health-2/maternal-child-and-family-health-concentration) focuses on determinants and systems that promote the health and safety of women, children, and their families — with the goal of enhancing the welfare of society and subsequent generations. With a strong foundation in frameworks and methods for program planning and impact evaluation, this concentration equips graduates with an adaptable toolkit for leading interdisciplinary efforts requiring multiple perspectives and competencies in domestic and global contexts.

Requirements

Requirements for the **M.P.H.** degree in the **Maternal, Child, and Family Health** concentration

Code	Title	Hours
M.P.H. Integrated Core		
SPHG 711	Data Analysis for Public Health Fall 1	2
SPHG 712	Methods and Measures for Public Health Practice Fall 1	2
SPHG 713	Understanding Public Health Issues Fall 1	2
SPHG 721	Conceptualizing Public Health Solutions Spring 1	2
SPHG 722	Developing, Implementing, and Evaluating Public Health Solutions Spring 1	4
M.P.H. Concentration		
MHCH 701	Foundations of Maternal and Child Health I Fall 1	3
MHCH 702	Foundations of Maternal and Child Health II Spring 1	3
MHCH 713	Research Methods in Maternal and Child Health Spring 1	3
MHCH 713L	Research and Evaluation Methods in Maternal and Child Health Lab Spring 1	1
MHCH 728	Introduction to Implementation Research and Practice in Maternal, Child and Family Health Fall 2	3
MHCH 723	Introduction to Monitoring and Evaluation of Global Health Programs Spring 2	3
M.P.H. Practicum		
SPHG 701	MPH Practicum Preparation Spring 1	2
Practicum: 200 minimum hours Summer 1		
SPHG 702	MPH Practicum Reflection Fall 2	1
M.P.H. Electives		
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
M.P.H. Culminating Experience		
MHCH 992	Master's (Non-Thesis) Spring 2	3
Total Hours		43

Competencies

Students will develop the following **Maternal, Child, and Family Health competencies**, building on the foundational public health knowledge they attain in the Gillings M.P.H. Integrated Core courses.

MHCP01.	Substantive knowledge: Critically analyze determinants of health among infants, children, adolescents, women, mothers, and families, including biological, behavioral, socioeconomic, demographic, cultural, and health care systems influences across the life course.
MHCP02.	Research: Contribute to public health evidence by applying rigorous research methods to address problems relevant to the health of MCFH populations.
MHCP03.	Leadership: Lead the development and implementation of MCFH research, policy, and practice across levels of the socio-ecological framework by incorporating family-centered, community-based, culturally competent, and interdisciplinary/inter-professional concepts.
MHCP04.	Practice: Understand and apply implementation, monitoring, and evaluation strategies to improve MCFH programs in the U.S. and globally.
MHCP05.	Policy: Advance MCFH policy and impact through critical analysis of research, monitoring, and evaluation evidence.

Admissions

Please visit Applying to the Gillings School (https://sph.unc.edu/students/how-to-apply) first for details and information. Application to the residential M.P.H. is a two-step process. Please apply separately to (1) SOPHAS and (2) UNC–Chapel Hill (via the Graduate School application). Visit https://gradschool.sites.unc.edu/master-of-public-health/ for more details. If you are interested in the online M.P.H., please visit the M.P.H.@UNC (https://onlinemph.unc.edu) Web site and fill out an inquiry form.

Practicum

This 200 (minimum) hour planned, mentored, and evaluated work experience (paid or unpaid) gives students the real-world opportunity to integrate and apply knowledge, skills, and values from Year One of their Gillings M.P.H. training in a professional public health setting such as a nonprofit organization, hospital, local or state health department, or for-profit firm (public or private sectors). Please visit the M.P.H. Practicum Web site (https://sph.unc.edu/resource-pages/master-of-public-health-2/mph-practicum) for additional information. In order to meet graduation requirements, a Gillings M.P.H. practicum must:

1. Occur after a student has completed the Gillings M.P.H. Core courses, the M.P.H. practicum preparation course (SPHG 701), and at least one concentration-required course from the student's declared concentration. In extenuating circumstances and with the approval from the student's declared concentration, some exceptions may apply.
2. Yield a least two student-generated products, produced in the practicum setting for the practicum setting, that allow for attainment of at least three (CEPH) M.P.H. Foundational and two concentration-specific competencies (Appendix A). In extenuating circumstances and with the approval from the concentration, students can petition to substitute up to two CEPH Foundational competencies for the concentration-specific competencies.
3. Be mentored by a supervisor (preceptor) with an advanced degree in public health or equivalent experience with expertise in the practicum project area.
4. Comprise a *minimum* of 200 hours (equivalent to five weeks of full-time work) in a location approved for student travel (UNC Travel Policy (https://global.unc.edu/files/2018/02/UNC-Travel-Policy-Final.pdf)), and the student must complete *UNC Gillings International Pre-Departure Travel Requirements* prior to travel.

Culminating Experience

Each student completes a 3-credit culminating experience and produces a high-quality written product that is completed near the end of the program of study. This culminating experience ideally is delivered in a manner that is useful to external stakeholders, such as nonprofit or governmental organizations, and could take the form of a course-based capstone project or master's paper, but will be tailored to the concentration a student chooses.

Academic Advising and Faculty Mentoring

We are committed to providing quality academic advising and mentoring for all students. We ensure that M.P.H. students get the guidance they need with several components: 1) an orientation program that provides an overview of the types and sources of M.P.H. advising; 2) cohort advising sessions to disseminate information that is relevant to course planning and registration; 3) faculty mentoring that provides students with tailored support for their academic, professional, personal development, and practicum support.

M.P.H. students will complete a 2-semester, 12-credit-hour **Integrated Core** taught by an interdisciplinary team of instructors. The 6-credit first semester (fall) focuses on understanding public health issues, and the second semester (6-credit spring courses) focuses on creating solutions to those issues.

All M.P.H. students take **COMPASS (Core Online Modules to Promote and Accelerate Student Success).** These brief, self-paced online modules are open for students prior to their first academic year. Students can complete any and all parts of COMPASS up to and including the first week of class.

Electives: For the remaining 9 credits, students are free to choose elective courses from any of the 12 concentration areas listed above or from other courses in the Gillings School.

For information on policies and procedures, please visit the Gillings School Student Handbook (https://sph.unc.edu/students/gillings-school-student-handbook) Web site.

DEPARTMENT OF MATHEMATICS (GRAD)

Contact Information

Department of Mathematics
Visit Program Website (http://www.math.unc.edu)

Richard McLaughlin, Chair

The Department of Mathematics offers graduate training leading to the degrees of master of arts, master of science, and doctor of philosophy. A master's degree may be included or bypassed in the doctoral program. All of a student's graduate work may be done within the department or, when appropriate, may be done under the direction of an approved advisor in an allied discipline. The Department of Mathematics is housed in Phillips Hall and Chapman Hall. The Department of Mathematics offers a number of teaching assistantships and teaching fellowships each year. Applicants for financial aid are also considered for several University fellowships awarded by The Graduate School in the Universitywide competition. Applications for admission and financial assistance may be obtained from The Graduate School. Applications filed by the posted deadline will receive full consideration.

The general regulations of The Graduate School govern the work for graduate degrees in mathematics. Specific requirements are explained below. In general, a graduate student in mathematics may receive credit only for mathematics courses numbered 600 and above.

These descriptions summarize the requirements for the master's and Ph.D. degrees. More detailed statements may be obtained from the department. The director of graduate studies must approve all aspects of a student's program. The purpose of the graduate programs is to develop mathematical skills appropriate for competition in academia or industry.

The course schedule for first-year students will depend upon each student's undergraduate training. The normal course load for a graduate student is three courses (nine credit hours) per semester. Graduate students must maintain full-time status in order to qualify for tuition and health insurance benefits. First-year students typically choose courses from five yearlong sequences in algebra (MATH 676, MATH 677), analysis (MATH 653, MATH 656), geometry-topology (MATH 680, MATH 681), scientific computation (MATH 661, MATH 662), and methods of applied mathematics (MATH 668, MATH 669).

The Ph.D. comprehensive exams are based on the content of the first-year sequences. These exams are offered in January and August of each year, just before the semester begins. A Ph.D. student can pass either the Pure Math option or the Applied Math option for the qualifying examination. To pass the Pure Math option a student must pass any three of the five qualifying exams. To pass the Applied Math option, a student is required to pass Methods of Applied Math and Scientific Computation.

During the second year a typical Ph.D. student will take the Ph.D. comprehensive exams and select courses from a list of 20 more advanced "second tier" courses. A typical master's student will complete that degree during the second year. The department considers two years to be the normal time needed to complete a master's degree.

A candidate for a master's degree must satisfy each of the following requirements:

1. Earn at least two semesters of residency credit and complete all requirements within five years
2. Demonstrate computer programming ability by passing an approved undergraduate or graduate course in programming, or by passing an exam administered by the Department of Mathematics
3. Perform satisfactorily in 30 hours of graduate work in a program approved by the director of graduate studies. At least 15 of these hours must be in Department of Mathematics courses numbered 600 or above
4. Complete a master's project or thesis for a master of science degree or a master's thesis for a master of arts degree
5. Pass an oral examination upon completion of the master's project or master's thesis. The exam will cover coursework as well as the project or thesis
6. A master's candidate must pass one of the written comprehensive exams given to doctoral students.

A candidate for a Ph.D. degree must satisfy each of the following requirements:

1. Earn at least four semesters of residency credit and complete all requirements within eight years
2. Satisfy the same computer programming requirement as a master's student
3. Demonstrate reading competence in one approved foreign language by passing an approved course or by passing a translation exam administered by the Department of Mathematics
4. Complete either the Pure Math option or the Applied Math option for qualifying examinations by the beginning of the sixth semester
5. Pass at least six courses from the following two lists: a) the second tier courses or b) first-year comprehensive courses that are not basic courses for any of the comprehensive exams passed by the student. Of these six courses at least three must be numbered over 700 and drawn from the second tier list.
6. Pass the Teaching Assistant Teaching Seminar and perform a minimum of two semesters of instructional service
7. Pass a preliminary oral exam on the chosen Ph.D. specialty area
8. Write a Ph.D. thesis and defend it successfully during a final oral exam chaired by the thesis advisor

The student/faculty ratio of about 2/1 makes it possible for graduate students to take reading courses from individual faculty members that are tailored to meet the student's needs.

Minor in Mathematics

Graduate students in other departments who plan to offer mathematics as a (complete or partial) minor field for the Ph.D. should consult the director of graduate studies in mathematics for approval of their programs and for assignment of an advisor in the Department of Mathematics. This should be done at the earliest possible time in order to prevent disappointment for the student.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Idris Assani (45), Dynamical Systems, Ergodic Theory of Operators
Prakash Belkale (57), Algebraic Geometry

Roberto A. Camassa (16), Mathematical Modeling, Nonlinear Waves, Propagation, Dynamical Systems
Ivan V. Cherednik (48), Representation Theory, Mathematical Physics, Algebraic Combinatorics
M. Gregory Forest (7), Nonlinear Waves, Solitons, Fiber Flows of Complex Liquids
Jingfang Huang (51), Integral Equation Methods and Fast Algorithms
Christopher K.R.T. Jones (55), Applications of Dynamical Systems, Nonlinear Partial Differential Equations, Ocean Dynamics, Nonlinear Optics
Shrawan Kumar (46), Representation Theory, Geometry of Flag Varieties
Richard McLaughlin (50), Fluid Dynamics and Turbulent Transport
Jason Metcalfe (61), Partial Differential Equations
Laura Miller (22), Mathematical Biology, Biomechanics, and Fluid Dynamics
Sorin Mitran (58), Computational Methods for Partial Differential Equations, Continuum-Kinetic Methods, Fluid Dynamics, Biological Fluid Dynamics and Mechanics
Peter J. Mucha (60), Network Analysis, Fluid Dynamics, Computer-Generated Animation
Richard Rimanyi (59), Topology, Geometry, Singularities
Lev Rozansky (52), Three-Dimensional Topology
Michael E. Taylor (40), Partial Differential Equations, Harmonic Analysis, Operator Theory
Alexandre N. Varchenko (47), Geometry, Mathematical Physics
Mark Williams (36), Partial Differential Equations

Associate Professors

David Adalsteinsson (1), Applied Mathematics and Scientific Computation
Hans Christianson (8), Semiclassical Analysis and Partial Differential Equations
Boyce Griffith (10), Numerical Analysis, Mathematical Biology
Jeremy Marzuola (9), Partial Differential Equations
Justin Sawon (64), Differential Geometry

Assistant Professors

Yaiza Canzani (18), Geometric Analysis, Semiclassical Analysis, Perturbation Theory
Jiuzu Hong (13), Representation Theory
Katie Newhall (12), Applied Mathematics, Stochastic Differential Equations
David Rose (17), Categorification, Low-Dimensional Topology, Representation Theory
Andrey Smirnov (19), Representation Theory, Mathematical Physics

Professors Emeriti

Joseph A. Cima
James N. Damon
Patrick Eberlein
Ladnor Gessinger
Sue E. Goodman
William H. Graves
Jane M. Hawkins
Robert G. Heyneman
Norberto Kerzman
Ancel C. Mewborn
Karl Petersen
John Pfaltzgraff
Joseph Plante
Robert A. Proctor
Michael Schlessinger
William W. Smith
Johann Sonner
James Stasheff
Jonathan M. Wahl
Warren R. Wogen

MATH

Advanced Undergraduate and Graduate-level Courses

MATH 406. Mathematical Methods in Biostatistics. 1 Credit.
Special mathematical techniques in the theory and methods of biostatistics as related to the life sciences and public health. Includes brief review of calculus, selected topics from intermediate calculus, and introductory matrix theory for applications in biostatistics.
Requisites: Prerequisite, MATH 232.
Gen Ed: QI.
Grading status: Letter grade.

MATH 410. Teaching and Learning Mathematics. 4 Credits.
Study of how people learn and understand mathematics, based on research in mathematics, mathematics education, psychology, and cognitive science. This course is designed to prepare undergraduate mathematics majors to become excellent high school mathematics teachers. It involves field work in both the high school and college environments.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

MATH 411. Developing Mathematical Concepts. 3 Credits.
Permission of the instructor. An investigation of various ways elementary concepts in mathematics can be developed. Applications of the mathematics developed will be considered.
Gen Ed: QI.
Grading status: Letter grade.

MATH 418. Basic Concepts of Analysis for High School Teachers. 3 Credits.
An examination of high school mathematics from an advanced perspective, including number systems and the behavior of functions and equations. Designed primarily for prospective or practicing high school teachers.
Requisites: Prerequisites, MATH 233 and 381.
Gen Ed: QI.
Grading status: Letter grade.

MATH 515. History of Mathematics. 3 Credits.
A general survey of the history of mathematics with emphasis on elementary mathematics. Some special problems will be treated in depth.
Requisites: Prerequisite, MATH 381.
Gen Ed: QI.
Grading status: Letter grade.

MATH 521. Advanced Calculus I. 3 Credits.
A grade of A- or better in STOR 215 may substitute for MATH 381. The real numbers, continuity and differentiability of functions of one variable, infinite series, integration. Honors version available
Requisites: Prerequisites, MATH 233 and 381.
Gen Ed: QI.
Grading status: Letter grade.

MATH 521H. Advanced Calculus I. 3 Credits.
A grade of A- or better in STOR 215 may substitute for MATH 381. The real numbers, continuity and differentiability of functions of one variable, infinite series, integration.
Requisites: Prerequisites, MATH 233 and 381.
Gen Ed: QI.
Grading status: Letter grade.

MATH 522. Advanced Calculus II. 3 Credits.
Functions of several variables, the derivative as a linear transformation, inverse and implicit function theorems, multiple integration. Honors version available
Requisites: Prerequisites, MATH 383 and 521.
Gen Ed: QI.
Grading status: Letter grade.

MATH 522H. Advanced Calculus II. 3 Credits.
Functions of several variables, the derivative as a linear transformation, inverse and implicit function theorems, multiple integration.
Requisites: Prerequisites, MATH 383 and 521.
Gen Ed: QI.
Grading status: Letter grade.

MATH 523. Functions of a Complex Variable with Applications. 3 Credits.
The algebra of complex numbers, elementary functions and their mapping properties, complex limits, power series, analytic functions, contour integrals, Cauchy's theorem and formulae, Laurent series and residue calculus, elementary conformal mapping and boundary value problems, Poisson integral formula for the disk and the half plane.
Requisites: Prerequisite, MATH 383.
Gen Ed: QI.
Grading status: Letter grade.

MATH 524. Elementary Differential Equations. 3 Credits.
Linear differential equations, power series solutions, Laplace transforms, numerical methods.
Requisites: Prerequisite, MATH 383.
Gen Ed: QI.
Grading status: Letter grade.

MATH 528. Mathematical Methods for the Physical Sciences I. 3 Credits.
Theory and applications of Laplace transform, Fourier series and transform, Sturm-Liouville problems. Students will be expected to do some numerical calculations on either a programmable calculator or a computer. This course has an optional computer laboratory component: MATH 528L.
Requisites: Prerequisite, MATH 383.
Gen Ed: QI.
Grading status: Letter grade.

MATH 528L. Laboratory for Mathematical Methods for the Physical Sciences I. 1 Credit.
Training in the use of symbolic and numerical computing packages and their application to the MATH 528 lecture topics. Students will need a CCI-compatible computing device.
Requisites: Prerequisite, MATH 383; pre- or corequisite, MATH 528.
Grading status: Letter grade.

MATH 529. Mathematical Methods for the Physical Sciences II. 3 Credits.
Introduction to boundary value problems for the diffusion, Laplace and wave partial differential equations. Bessel functions and Legendre functions. Introduction to complex variables including the calculus of residues. This course has an optional computer laboratory component: MATH 529L.
Requisites: Prerequisite, MATH 521, 524, or 528.
Gen Ed: QI.
Grading status: Letter grade.

MATH 529L. Laboratory for Mathematical Methods for the Physical Sciences II. 1 Credit.
Training in the use of symbolic and numerical computing packages and their application to the MATH 529 lecture topics. Students will need a CCI-compatible computing device.
Requisites: Prerequisite, MATH 383; pre- or corequisite, MATH 529.
Grading status: Letter grade.

MATH 533. Elementary Theory of Numbers. 3 Credits.
A grade of A- or better in STOR 215 may substitute for MATH 381. Divisibility, Euclidean algorithm, congruences, residue classes, Euler's function, primitive roots, Chinese remainder theorem, quadratic residues, number-theoretic functions, Farey and continued fractions, Gaussian integers.
Requisites: Prerequisite, MATH 381.
Gen Ed: QI.
Grading status: Letter grade.

MATH 534. Elements of Modern Algebra. 3 Credits.
A grade of A- or better in STOR 215 may substitute for MATH 381. Binary operations, groups, subgroups, cosets, quotient groups, rings, polynomials.
Requisites: Prerequisite, MATH 381.
Gen Ed: QI.
Grading status: Letter grade.

MATH 535. Introduction to Probability. 3 Credits.
Introduction to mathematical theory of probability covering random variables; moments; binomial, Poisson, normal and related distributions; generating functions; sums and sequences of random variables; and statistical applications.
Requisites: Prerequisite, MATH 233.
Gen Ed: QI.
Grading status: Letter grade
Same as: STOR 435.

MATH 547. Linear Algebra for Applications. 3 Credits.
Algebra of matrices with applications: determinants, solution of linear systems by Gaussian elimination, Gram-Schmidt procedure, eigenvalues. MATH 416 may not be taken for credit after credit has been granted for MATH 547.
Requisites: Prerequisite, MATH 233 or 283.
Gen Ed: QI.
Grading status: Letter grade.

MATH 548. Combinatorial Mathematics. 3 Credits.
Counting selections, binomial identities, inclusion-exclusion, recurrences, Catalan numbers. Selected topics from algorithmic and structural combinatorics, or from applications to physics and cryptography.
Requisites: Prerequisite, MATH 381 or STOR 215.
Gen Ed: QI.
Grading status: Letter grade.

MATH 550. Topology. 3 Credits.
Introduction to topics in topology, particularly surface topology, including classification of compact surfaces, Euler characteristic, orientability, vector fields on surfaces, tessellations, and fundamental group.
Requisites: Prerequisites, MATH 233 and 381; co-requisite, MATH 383; A grade of A- or better in STOR 215 may substitute for MATH 381.
Gen Ed: QI.
Grading status: Letter grade.

MATH 551. Euclidean and Non-Euclidean Geometries. 3 Credits.
A grade of A- or better in STOR 215 may substitute for MATH 381. Critical study of basic notions and models of Euclidean and non-Euclidean geometries: order, congruence, and distance.
Requisites: Prerequisite, MATH 381.
Gen Ed: QI.
Grading status: Letter grade.

MATH 553. Mathematical and Computational Models in Biology. 3 Credits.
This course introduces analytical, computational, and statistical techniques, such as discrete models, numerical integration of ordinary differential equations, and likelihood functions, to explore various fields of biology.
Requisites: Prerequisites, BIOL 201 and 202, MATH 231, and either MATH 232 or STOR 155; Co-requisite, BIOL 553L/MATH 553L; permission of the instructor for students lacking the requisites.
Gen Ed: QI.
Grading status: Letter grade
Same as: BIOL 553.

MATH 553L. Mathematical and Computational Models in Biology Laboratory. 1 Credit.
This lab introduces analytical, computational, and statistical techniques, such as discrete models, numerical integration of ordinary differential equations, and likelihood functions, to explore various fields of biology.
Requisites: Prerequisites, BIOL 201 and 202, MATH 231, and either MATH 232 or STOR 155; Co-requisite, BIOL 553/MATH 553; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: BIOL 553L.

MATH 555. Introduction to Dynamics. 3 Credits.
Topics will vary and may include iteration of maps, orbits, periodic points, attractors, symbolic dynamics, bifurcations, fractal sets, chaotic systems, systems arising from differential equations, iterated function systems, and applications.
Requisites: Prerequisite, MATH 383.
Gen Ed: QI.
Grading status: Letter grade.

MATH 564. Mathematical Modeling in the Life Sciences. 3 Credits.
Requires some knowledge of computer programming. Model validation and numerical simulations using ordinary, partial, stochastic, and delay differential equations. Applications to the life sciences may include muscle physiology, biological fluid dynamics, neurobiology, molecular regulatory networks, and cell biology.
Requisites: Prerequisite, MATH 383.
Gen Ed: QI.
Grading status: Letter grade
Same as: BIOL 534.

MATH 565. Computer-Assisted Mathematical Problem Solving. 3 Credits.
Personal computer as tool in solving a variety of mathematical problems, e.g., finding roots of equations and approximate solutions to differential equations. Introduction to appropriate programming language; emphasis on graphics.
Requisites: Prerequisite, MATH 383.
Gen Ed: QI.
Grading status: Letter grade.

MATH 566. Introduction to Numerical Analysis. 3 Credits.
Requires some knowledge of computer programming. Iterative methods, interpolation, polynomial and spline approximations, numerical differentiation and integration, numerical solution of ordinary and partial differential equations.
Requisites: Prerequisite, MATH 383.
Gen Ed: QI.
Grading status: Letter grade.

MATH 577. Linear Algebra. 3 Credits.
Vector spaces, linear transformations, duality, diagonalization, primary and cyclic decomposition, Jordan canonical form, inner product spaces, orthogonal reduction of symmetric matrices, spectral theorem, bilinear forms, multilinear functions. A much more abstract course than MATH 416 or 547.
Requisites: Prerequisites, MATH 381 and 383; A grade of A- or better in STOR 215 may substitute for MATH 381.
Gen Ed: QI.
Grading status: Letter grade.

MATH 578. Algebraic Structures. 3 Credits.
Permutation groups, matrix groups, groups of linear transformations, symmetry groups; finite abelian groups. Residue class rings, algebra of matrices, linear maps, and polynomials. Real and complex numbers, rational functions, quadratic fields, finite fields.
Requisites: Prerequisite, MATH 547 or 577.
Gen Ed: QI.
Grading status: Letter grade.

MATH 590. Topics in Mathematics. 3 Credits.
Permission of the instructor. Topics may focus on matrix theory, analysis, algebra, geometry, or applied and computational mathematics.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

MATH 594. Nonlinear Dynamics. 3 Credits.
Interdisciplinary introduction to nonlinear dynamics and chaos. Fixed points, bifurcations, strange attractors, with applications to physics, biology, chemistry, finance.
Requisites: Prerequisite, MATH 383; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: PHYS 594.

MATH 635. Probability II. 3 Credits.
Foundations of probability. Basic classical theorems. Modes of probabilistic convergence. Central limit problem. Generating functions, characteristic functions. Conditional probability and expectation.
Requisites: Prerequisite, STOR 634; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: STOR 635.

MATH 641. Enumerative Combinatorics. 3 Credits.
Basic counting; partitions; recursions and generating functions; signed enumeration; counting with respect to symmetry, plane partitions, and tableaux.
Requisites: Prerequisite, MATH 578.
Grading status: Letter grade.

MATH 643. Combinatorial Structures. 3 Credits.
Graph theory, matchings, Ramsey theory, extremal set theory, network flows, lattices, Moebius inversion, q-analogs, combinatorial and projective geometries, codes, and designs.
Requisites: Prerequisite, MATH 578.
Grading status: Letter grade.

MATH 653. Introductory Analysis. 3 Credits.
Requires knowledge of advanced calculus. Elementary metric space topology, continuous functions, differentiation of vector-valued functions, implicit and inverse function theorems. Topics from Weierstrass theorem, existence and uniqueness theorems for differential equations, series of functions.
Grading status: Letter grade.

MATH 656. Complex Analysis. 3 Credits.
A rigorous treatment of complex integration, including the Cauchy theory. Elementary special functions, power series, local behavior of analytic functions.
Requisites: Prerequisite, MATH 653.
Grading status: Letter grade.

MATH 657. Qualitative Theory of Differential Equations. 3 Credits.
Requires knowledge of linear algebra. Existence and uniqueness theorems, linear and nonlinear systems, differential equations in the plane and on surfaces, Poincare-Bendixson theory, Lyapunov stability and structural stability, critical point analysis.
Requisites: Prerequisite, MATH 653.
Grading status: Letter grade.

MATH 661. Scientific Computation I. 3 Credits.
Requires some programming experience and basic numerical analysis. Error in computation, solutions of nonlinear equations, interpolation, approximation of functions, Fourier methods, numerical integration and differentiation, introduction to numerical solution of ODEs, Gaussian elimination.
Grading status: Letter grade
Same as: ENVR 661.

MATH 662. Scientific Computation II. 3 Credits.
Theory and practical issues arising in linear algebra problems derived from physical applications, e.g., discretization of ODEs and PDEs. Linear systems, linear least squares, eigenvalue problems, singular value decomposition.
Requisites: Prerequisite, MATH 661.
Grading status: Letter grade
Same as: COMP 662, ENVR 662.

MATH 668. Methods of Applied Mathematics I. 3 Credits.
Requires an undergraduate course in differential equations. Contour integration, asymptotic expansions, steepest descent/stationary phase methods, special functions arising in physical applications, elliptic and theta functions, elementary bifurcation theory.
Grading status: Letter grade
Same as: ENVR 668.

MATH 669. Methods of Applied Mathematics II. 3 Credits.
Perturbation methods for ODEs and PDEs, WKBJ method, averaging and modulation theory for linear and nonlinear wave equations, long-time asymptotics of Fourier integral representations of PDEs, Green's functions, dynamical systems tools.
Requisites: Prerequisite, MATH 668.
Grading status: Letter grade
Same as: ENVR 669.

MATH 676. Modules, Linear Algebra, and Groups. 3 Credits.
Requires knowledge of linear algebra and algebraic structures. Modules over rings, canonical forms for linear operators and bilinear forms, multilinear algebra, groups and group actions.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

MATH 677. Groups, Representations, and Fields. 3 Credits.
Internal structure of groups, Sylow theorems, generators and relations, group representations, fields, Galois theory, category theory.
Requisites: Prerequisite, MATH 676.
Grading status: Letter grade.

MATH 680. Geometry of Curves and Surfaces. 3 Credits.
Topics include (curves) Frenet formulas, isoperimetric inequality, theorems of Crofton, Fenchel, Fary-Milnor; (surfaces) fundamental forms, Gaussian and mean curvature, special surfaces, geodesics, Gauss-Bonnet theorem.
Requisites: Prerequisite, advanced calculus.
Grading status: Letter grade.

MATH 681. Introductory Topology. 3 Credits.
Topological spaces, connectedness, separation axioms, product spaces, extension theorems. Classification of surfaces, fundamental group, covering spaces.
Requisites: Prerequisites, MATH 653 and 680.
Grading status: Letter grade.

MATH 690. Topics In Mathematics. 3 Credits.
Permission of the department. Directed study of an advanced topic in mathematics. Topics will vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

MATH 691H. Honors Research in Mathematics. 3 Credits.
Permission of the director of undergraduate studies. Readings in mathematics and the beginning of directed research on an honors thesis.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

MATH 692H. Honors Thesis in Mathematics. 3 Credits.
Permission of the director of undergraduate studies. Completion of an honors thesis under the direction of a member of the faculty. Required of all candidates for graduation with honors in mathematics.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

MATH 751. Introduction to Partial Differential Equations. 3 Credits.
Basic methods in partial differential equations. Topics may include: Cauchy-Kowalewski Theorem, Holmgren's Uniqueness Theorem, Laplace's equation, Maximum Principle, Dirichlet problem, harmonic functions, wave equation, heat equation.
Requisites: Prerequisite, MATH 653.
Grading status: Letter grade.

MATH 753. Measure and Integration. 3 Credits.
Lebesgue and abstract measure and integration, convergence theorems, differentiation, Radon-Nikodym theorem, product measures, Fubini theorem, Lebesgue spaces, invariance under transformations, Haar measure and convolution.
Requisites: Prerequisite, MATH 653; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

MATH 754. Introductory Functional Analysis. 3 Credits.
Hahn-Banach and separation theorems. Normed and locally convex spaces, duals of spaces and maps, weak topologies; closed graph and open mapping theorems, uniform boundedness theorem, linear operators. Spring.
Requisites: Prerequisite, MATH 753.
Grading status: Letter grade.

MATH 755. Advanced Complex Analysis. 3 Credits.
Laurent series; Mittag-Leffler and Weierstrass Theorems; Riemann mapping theorem; Runge's theorem; additional topics chosen from: harmonic, elliptic, univalent, entire, meromorphic functions; Dirichlet problem; Riemann surfaces.
Requisites: Prerequisite, MATH 656.
Grading status: Letter grade.

MATH 756. Several Complex Variables. 3 Credits.
Elementary theory, the Cousin problems, domains of holomorphy, Runge domains and polynomial approximation, local theory, complex analytic structures, coherent analytic sheaves and Stein manifolds, Cartan's theorems.
Requisites: Prerequisite, MATH 656.
Grading status: Letter grade.

MATH 761. Numerical ODE/PDE, I. 3 Credits.
Single, multistep methods for ODEs: stability regions, the root condition; stiff systems, backward difference formulas; two-point BVPs; stability theory; finite difference methods for linear advection diffusion equations.
Requisites: Prerequisites, MATH 661 and 662.
Grading status: Letter grade
Same as: ENVR 761, MASC 781.

MATH 762. Numerical ODE/PDE, II. 3 Credits.
Elliptic equation methods (finite differences, elements, integral equations); hyperbolic conservation law methods (Lax-Fiedrich, characteristics, entropy condition, shock tracking/capturing); spectral, pseudo-spectral methods; particle methods, fast summation, fast multipole/vortex methods.
Requisites: Prerequisite, MATH 761.
Grading status: Letter grade
Same as: ENVR 762, MASC 782.

MATH 768. Mathematical Modeling I. 3 Credits.
Nondimensionalization and identification of leading order physical effects with respect to relevant scales and phenomena; derivation of classical models of fluid mechanics (lubrication, slender filament, thin films, Stokes flow); derivation of weakly nonlinear envelope equations. Fall.
Requisites: Prerequisites, MATH 661, 662, 668, and 669.
Grading status: Letter grade
Same as: ENVR 763, MASC 783.

MATH 769. Mathematical Modeling II. 3 Credits.
Current models in science and technology: topics ranging from material science applications (e.g., flow of polymers and LCPs); geophysical applications (e.g., ocean circulation, quasi-geostrophic models, atmospheric vortices).
Requisites: Prerequisites, MATH 661, 662, 668, and 669.
Grading status: Letter grade
Same as: ENVR 764, MASC 784.

MATH 771. Commutative Algebra. 3 Credits.
Field extensions, integral ring extensions, Nullstellensatz and normalization theorem, derivations and separability, local rings, valuations, completions, filtrations and graded rings, dimension theory.
Requisites: Prerequisite, MATH 677.
Grading status: Letter grade.

MATH 773. Lie Groups. 3 Credits.
Lie groups, closed subgroups, Lie algebra of a Lie group, exponential map, compact groups, Haar measure, orthogonality relations, Peter-Weyl theorem, maximal torus, representations, Weyl character formula, homogeneous spaces.
Requisites: Prerequisites, MATH 676 and 781.
Grading status: Letter grade.

MATH 774. Lie Algebras. 3 Credits.
Nilpotent, solvable, and semisimple Lie algebras, structure theorems, root systems, Weyl groups, weights, classification of semisimple Lie algebras and their finite dimensional representations, character formulas.
Requisites: Prerequisite, MATH 676.
Grading status: Letter grade.

MATH 775. Algebraic Geometry. 3 Credits.
Topics may include: algebraic varieties, algebraic functions, abelian varieties, projective and complete varieties, algebraic groups, schemes and the Grothendieck theory, Riemann-Roch theorem.
Requisites: Prerequisite, MATH 771.
Grading status: Letter grade.

MATH 776. Algebraic Topology. 3 Credits.
Homotopy and homology; simplicial complexes and singular homology; other topics may include cohomology, universal coefficient theorems, higher homotopy groups, fibre spaces.
Requisites: Prerequisites, MATH 676 and 681.
Grading status: Letter grade.

MATH 781. Differentiable Manifolds. 3 Credits.
Calculus on manifolds, vector bundles, vector fields and differential equations, Lie Groups, connections, de Rham cohomology.
Requisites: Prerequisites, MATH 653, 676, and 681.
Grading status: Letter grade.

MATH 782. Differential Geometry. 3 Credits.
Riemannian geometry, first and second variation of area and applications, effect of curvature on homology and homotopy, Chern-Weil theory of characteristic classes, Chern-Gauss-Bonnet theorem.
Requisites: Prerequisite, MATH 781.
Grading status: Letter grade.

MATH 853. Harmonic Analysis. 3 Credits.
Permission of the instructor. Subjects may include topological groups, abstract harmonic analysis, Fourier analysis, noncommutative harmonic analysis and group representation, automorphic forms, and analytic number theory.
Grading status: Letter grade.

MATH 854. Advanced Functional Analysis. 3 Credits.
Permission of the instructor. Subjects may include operator theory on Hilbert space, operators on Banach spaces, locally convex spaces, vector measures, Banach algebras.
Grading status: Letter grade.

MATH 857. Theory of Dynamical Systems. 3 Credits.
Permission of the instructor. Topics may include: ergodic theory, topological dynamics, stability theory of differential equations, classical dynamical systems, differentiable dynamics.
Grading status: Letter grade.

MATH 891. Special Topics. 1-3 Credits.
Advance topics in current research in statistics and operations research.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade
Same as: GNET 891, BCB 891.

MATH 892. Topics in Computational Mathematics. 3 Credits.
Topics may include: finite element method; numerical methods for hyperbolic conservation laws, infinite dimensional optimization problems, variational inequalities, inverse problems.
Requisites: Prerequisites, MATH 661 and 662.
Grading status: Letter grade.

MATH 893. Topics in Algebra. 3 Credits.
Topics from the theory of rings, theory of bialgebras, homological algebra, algebraic number theory, categories and functions.
Requisites: Prerequisite, MATH 677.
Grading status: Letter grade.

MATH 894. Topics in Combinatorial Mathematics. 3 Credits.
Topics may include: combinatorial geometries, coloring and the critical problem, the bracket algebra, reduced incidence algebras and generating functions, binomial enumeration, designs, valuation module of a lattice, lattice theory.
Requisites: Prerequisite, MATH 641; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

MATH 895. Special Topics in Geometry. 3 Credits.
Topics may include elliptic operators, complex manifolds, exterior differential systems, homogeneous spaces, integral geometry, submanifolds of Euclidean space, geometrical aspects of mathematical physics.
Requisites: Prerequisite, MATH 781.
Grading status: Letter grade.

MATH 896. Topics in Algebraic Topology. 3 Credits.
Topics primarily from algebraic or differential topology, such as cohomology operations, homotopy groups, fibre bundles, spectral sequences, K-theory, cobordism, Morse Theory, surgery, topology of singularities.
Requisites: Prerequisite, MATH 776; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

MATH 920. Seminar and Directed Readings. 1-3 Credits.

MATH 921. Seminar. 3 Credits.

MATH 925. Practical Training Course in Mathematics. 1-3 Credits.
Required preparation, passed Ph.D. or M.S. written comprehensive exam. An opportunity for the practical training of a graduate student interested in mathematics is identified. Typically this opportunity is expected to take the form of a summer internship.
Requisites: Prerequisite, Successful completion of the written comprehensive examination degree requirement.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

MATH 992. Master's (Non-Thesis). 3 Credits.

MATH 993. Master's Research and Thesis. 3 Credits.
This should not be taken by students electing non-thesis master's projects.
Repeat rules: May be repeated for credit.

MATH 994. Doctoral Research and Dissertation. 3 Credits.

SCHOOL OF MEDIA AND JOURNALISM (GRAD)

Contact Information

School of Media and Journalism
Visit Program Website (http://www.mj.unc.edu/academics/graduate-studies)
mjgrad@unc.edu
919.843.8307

Susan King, Dean

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h2kamins@email.unc.edu

Dr. Daniel Kreiss, Ph.D. Program Director
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Dr. Tom Linden, M.A. Program Director
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Dr. Rhonda Gibson, M.A.D.C. Program Director
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Sherry McKinney, Graduate Student Services Coordinator
sherry_mckinney@unc.edu

The School of Media and Journalism offers programs leading to the master of arts in media and communication, the master of arts in digital communication, and the doctor of philosophy in media and communication. In all of the school's graduate offerings, students are taught to examine critically the role of media in society and are provided with a firm grounding in theory and analysis. By setting high standards for both scholarly and professional achievement, the school seeks to prepare graduates to be leaders and critical thinkers, no matter what career paths they might take.

Financial Assistance for Master's Students

Roy H. Park Fellowships are available to eight incoming master's students each year. Each fellowship provides a $14,000 annual stipend, payment of tuition and fees, and health insurance. Master's student funding lasts for two years. Continuation of funding beyond the first year is dependent on satisfactory progress in the program and in the work assignment. In return for this funding, each fellow must work as a graduate assistant. These are 15-hour workweeks, and assignments vary according to the needs of the faculty member and the interest and skill level of the student. The Roy H. Park Fellowships are available only to United States citizens and applicants must go through a rigorous selection process, which includes an application.

The **Peter DeWitt Pruden Jr. and Phyllis Harrill Stancill Pruden Fellowship** provides an incoming master's student with a $14,000 annual stipend, payment of tuition and fees, and health insurance. Master's student funding lasts for two years. Continuation of funding beyond the first year is dependent on satisfactory progress in the program and in the work assignment. In return for this funding, the Peter DeWitt Pruden Jr. and Phyllis Harrill Stancill Pruden fellow must work as a graduate assistant for 15 hours each week during the academic year. Graduate assistantship assignments vary according to the needs of the faculty member and the interest and skill levels of the student. There is no special application process for these fellowships.

Each spring, continuing master's students may apply for a number of scholarships and awards, including the **William F. Clingman Award** for the study of ethics; the **Tom Wicker Scholarship** for students pursuing reporting careers; the **Joseph L. Morrison Award for Excellence in Journalism History**; the **Kathryn M. Cronin Scholarship** for students intending to pursue a career in medical journalism, science communication, or health communication; and the **Maxwell Graduate Scholarship in Medical Journalism**. In addition, limited funds for thesis research are available through the **Minnie S. and Eli A. Rubinstein Award.**

Federal financial aid is available for students enrolled a minimum of 4.5 hours per semester and who show financial need. The aid is typically limited to federal loans. Graduate/professional students apply for financial aid by completing the FAFSA.

Financial Assistance for Ph.D. Students

Roy H. Park Fellowships are available to seven incoming doctoral students each year. Each fellowship provides an annual stipend of $20,500, payment of tuition and fees, $6,000 of research and travel support, a $2,500 computer start-up package, and health insurance. Funding lasts for three years. Continuation of funding each year is dependent on satisfactory progress in the program. In return for this funding, each fellow must work as a graduate assistant for 15 hours each week. Each year the school offers a competitive fourth year of Roy H. Park funding for one doctoral student. Additional opportunities for a fourth year of funding are often available through grant-funded projects headed by our faculty. Assistantship assignments vary according to the needs of the faculty member and the interest and skill levels of the students. The Roy H. Park Fellowships are available only to United States citizens and applicants must go through a rigorous selection process, which includes an application.

The **Richard Cole Eminent Professor Graduate Fellowship** provides one Ph.D. student an annual $20,500 stipend, payment of tuition and fees, $6,000 per year of research support, and health insurance. Funding is for three years. Continuation of funding beyond the first year is dependent on satisfactory progress in the program. There is no special application process for this fellowship.

Each spring, doctoral students may apply for a number of scholarships and awards, including the **William F. Clingman Award** for the study of ethics and the **Joseph L. Morrison Award for Excellence in Journalism History**. In addition, limited funds for dissertation research are available through the M**innie S. and Eli A. Rubinstein Awards** and the **Margaret Blanchard Dissertation Support Scholarship.**

Federal financial aid is available for students enrolled a minimum of 4.5 hours per semester and who show financial need. The aid is typically limited to federal loans. Graduate/professional students apply for financial aid by completing the FAFSA.

Master of Arts in Media and Communication

The M.A. in media and communication program is a full-time residential program. Annual enrollment in the program totals about 45 students. The program consists of four areas of study: strategic communication, journalism, visual communication, and theory and research. An M.A.–J.D.

dual-degree program also is offered in partnership with the UNC School of Law.

Requirements

All residential master's students, regardless of area of study, must pass the school's word usage and grammar test. This examination is a basic requirement for graduation for our undergraduate students and should pose no challenge for graduate students. Information on the word usage and grammar test, including instructions on how to study for it, is included in the orientation packet sent to new students each summer.

Each student must pass a comprehensive written examination covering the material in the student's courses and an oral examination on the thesis or professional project given by the student's thesis committee.

Length of the Master's Program

Most students complete the master's in media and communication program in two years, typically attending classes full-time during three consecutive semesters and completing the thesis, articles, or project in the fourth semester. Some students find it necessary to stay the summer after their second year to complete their theses, articles, or special projects.

Journalism Area of Study

The journalism area of study prepares students for careers in journalism with the opportunity to specialize in one of four areas: broadcast and electronic journalism, design/editing journalism, reporting, or medical and science journalism. Students learn about all facets of journalism, including research, analysis, writing, reporting, and editing. Because we believe that our professional master's curricula should prepare students to be leaders in the 21st-century workplace, this area of study seeks a balance between critical thinking and technical communication skills.

Journalism master's students complete 36 total credit hours, comprised of 11 courses over three semesters and a final thesis or thesis project in the fourth semester. At least nine courses must be taken within the school, and up to two courses may be taken from related subject fields in other schools and departments of the University or at neighboring universities. Each student is required to take four core courses (research methods, media law, reporting/writing, and multimedia) and three courses in a selected area of specialization. A thesis or project is also required of each student.

Strategic Communication Area of Study

The strategic communication area of study prepares students for advertising, marketing communication, and public relations positions in agencies, corporations, nonprofit organizations, and government. Because we believe that our professional master's curricula should prepare students to be leaders in the 21st-century workplace, this area of study seeks a balance between critical thinking and technical communication skills.

Strategic communication master's students complete 36 total credit hours, comprised of 11 courses over three semesters and a final thesis or thesis project in the fourth semester. At least nine courses must be taken within the school, and up to two courses may be taken from related subject fields in other schools and departments of the University or at neighboring universities. Each student is required to take four core courses (research methods, media law, reporting/writing, and multimedia) and four other required courses (market intelligence, advertising and marketing, public relations foundations, public relations research). A thesis or project is also required of each student.

Visual Communication Area of Study

With specializations in interactive/graphic design and photo/video, visual communication master's students learn to tell stories on a variety of visual platforms. Because we believe that our professional master's curricula should prepare students to be leaders in the 21st-century workplace, this area of study seeks a balance between critical thinking and technical communication skills.

Visual communication master's students complete 36 total credit hours, comprised of 11 courses over three semesters and a final thesis or thesis project in the fourth semester. At least nine courses must be taken within the school, and up to two courses may be taken from related subject fields in other schools and departments of the University or at neighboring universities. Each student is required to take four core courses (research methods, media law, reporting/writing, and multimedia) and three courses in a selected area of specialization. A thesis or project is also required of each student.

Theory and Research Area of Study

The theory and research area of study is designed for students who are interested in pursuing a doctoral degree or research positions in industry. The curriculum for students in this track is closely tied to the Ph.D. program curriculum. Students in this track do not take professional skills courses.

Within this 39-credit-hour degree program, each student completes a core set of classes and works with an advisor to build a specialized program of studies based on this foundation. Core courses include mass communication theory, research methods, and media law. Students also are required to take at least two courses in other schools and departments at the University or at neighboring universities. A research thesis also is required of each theory and research master's student.

J.D.–M.A. Dual Degree

The J.D.–M.A. dual-degree program is designed for students interested in pursuing graduate studies in law and media and journalism and who plan to practice media or intellectual property law, pursue academic careers in law and mass communication fields, pursue doctoral study in a related field, or pursue a careers in journalism or strategic communication with a law-related emphasis.

Admitted students typically complete the required first-year law school curriculum during the first year of the dual-degree program. The M.A. portion of the program requires 39 course credit hours and typically follows the theory and research area of study curriculum described above. In the dual-degree program, a student may count up to 12 credit hours of LAW courses toward the M.A. and up to 12 credit hours of MEJO courses toward the J.D. That accounts for the 24 course credit hours that are "shared." That means that the dual degree requires a total of 101 unique course credit hours, and 27 of those course credit hours are MEJO course credit hours.

All degree requirements from both schools must be completed before the degrees are awarded, and dual-degree students must apply for concurrent graduation for both degrees the same semester. Students who do not maintain dual-degree status may need to take additional coursework if they pursue either degree separately after being admitted to the dual-degree program.

Master of Arts in Digital Communication (Online)

The master of arts in digital communication (M.A.D.C.) is an online program that offers a rigorous and unique curriculum enabling journalists and communication professionals to prepare for leadership positions in new media, journalism, advertising, public relations, and internal communication. The M.A.D.C. provides students with the knowledge and skills to solve communication problems using the new media tools that are transforming business practices. The M.A.D.C. draws on the expertise of the school's acclaimed faculty to position students for leadership roles in digital media and communication

Courses use an asynchronous course management system, which means that students are not required to gather online for class at specific times. The M.A.D.C. does feature one-hour synchronous sessions in some courses. These sessions are recorded for students to watch on their own time if they are unable to attend in real time. M.A.D.C. students also are required to attend two on-campus residencies: a two-day orientation and a week-long summer residency between the first and the second year of the program.

The M.A.D.C. program admits one group of no more than 20 students each fall. Each entering class progresses through the program together over a 2.5 year period. Classes are intentionally small with an emphasis on interaction between faculty and students. Additional information is available on the program's Web site (http://mj.unc.edu/madc).

Requirements

The 30-credit-hour program consists of a set nine-course curriculum and a three-credit thesis project. These classes are taken in a prescribed order.

Code	Title	Hours
MEJO 711	Writing for Digital Media	3
MEJO 713	Digital Data and Analytics	3
MEJO 715	New Media and Society	3
MEJO 716	Research Methods and Applications	3
MEJO 717	Visual Communication and Information Architecture	3
MEJO 718	Media Law for the Digital Age	3
MEJO 719	Leadership in Digital Media Economics	3
MEJO 720	Strategic Communication	3
MEJO 721	Usability and Multimedia Design	3
MEJO 992	Master's (Non-Thesis)	3

Length of the M.A.D.C. Program

The M.A.D.C. program is designed to be completed in 2.5 years on a part-time schedule. During the first year, students enroll in two courses in the fall, two courses in the spring, and one course in the summer. In the second year, students enroll in two courses in the fall and two courses in the spring. In the third year, students enroll in a nontraditional thesis course in the fall.

Ph.D. in Mass Communication

The Ph.D. in media and communication is designed to prepare students for academic faculty positions or research jobs in communication-related industries. Students complete a core set of classes and work with their advisor to develop a program of study that is interdisciplinary, allowing the student to take full advantage of the University's rich academic offerings and tailored to meet the specific needs and interests of the student. They learn cutting-edge research methods and acquire a deep understanding of communication theory to help them develop a research program that fits their specific interests. The goal of the program is to produce outstanding scholars who are highly knowledgeable about communication and highly skilled as researchers.

The program is small and selective; no more than 10 to 12 students are admitted each year. Admissions decisions are based not only on the standard criteria described elsewhere in this catalog—GRE scores, grade averages, and letters of recommendation—but also on a determination of whether the applicant's interests and goals fit with those of the program and faculty. For that reason, the statement of purpose and statement of research interests that must accompany an application are extremely important, and applicants are encouraged to be as specific as possible in outlining their research interests and career goals.

Requirements

The doctoral program is designed to be flexible and interdisciplinary, yet designed to ensure that students are equipped to conduct rigorous research and teach or practice in at least one substantive area. Full-time students take four courses each semester for their first two years in the program, for 48 credit hours (400-level and above courses) that combine the three core courses below and electives. In their third year, students enroll in six dissertation credit hours, to total 54 required credit hours, and also complete comprehensive exams.

Code	Title	Hours
MEJO 701	Strategic Communication Research Methods	3
MEJO 705	Theories of Mass Communication	3
MEJO 890	Seminar in Special Topics in Mass Communication (Pro Seminar in Doctoral Studies)	3

The remaining required credit hours must be arrayed into three groups of courses: 1) a substantive area of study consisting of at least 15 hours of coursework; 2) research methods consisting of at least four courses; and 3) at least nine hours of coursework for the development of a secondary area of expertise or exploration of other substantive or methodological areas of the academy. Major and minor substantive areas should be selected from the list of approved substantive areas of study set by the program. The research methods that a student chooses to study must be appropriate to the student's areas of specialization and dissertation topic. Students may take up to half of their course credit hours outside of the school.

Other requirements include

- At least eight courses, totaling at least 24 credits, of 700-, 800-, and 900-level courses within the School of Media and Journalism
- At least four semesters in residence, with a minimum of two semesters in continuous study at UNC–Chapel Hill
- Satisfactory performance on written and oral comprehensive exams. Students must take both written and oral exams at the end of their Ph.D. coursework
- Successful completion and oral defense of a dissertation

Length of the Ph.D. Program

Most students complete the Ph.D. program in three to four years. Students typically complete four courses per semester over their first two

years in the program. In the third year, they take comprehensive exams, defend their dissertation proposals and complete their dissertations. Some students elect to stay a fourth year in order to compete more effectively for research-intensive positions at Research 1 universities or to pursue more ambitious dissertations.

The Graduate School requires students to complete the degree within eight years of first registration in the doctoral program. Reapplication is required to continue pursuing the degree if the eight-year time limit expires. In extenuating circumstances, a student in good academic standing may petition for an extension for a definite, stated period of time (up to one year).

J.D.–Ph.D. Dual-Degree Program

The J.D.–Ph.D. dual-degree program is designed for students interested in pursuing graduate studies in law and media and journalism and who plan to practice media or intellectual property law, pursue academic careers in law and mass communication fields, or pursue a career in journalism or strategic communication with a law-related emphasis.

Admission to the UNC School of Law and the Ph.D. in media and communication program in the School of Media and Journalism must be gained independently in order to be admitted to the J.D.–Ph.D. dual-degree program in law and media and communication. Admitted students typically complete the required first-year law school curriculum during the first year of the dual-degree program.

Dual-degree students must complete the required 54 credit hours for the Ph.D. in media and communication, of which up to 12 credit hours may be drawn from approved courses in the J.D. curriculum. Dual-degree students also must complete the required 86 credit hours for the J.D. degree, of which up to 12 hours may be drawn from approved courses in the Ph.D. in media and communication curriculum in the School of Media and Journalism. This allows J.D.–Ph.D. students to complete the dual-degree program with 116 credit hours over approximately five years, depending on the individual student's progress and program of study.

All degree requirements from both schools must be completed before the degrees are awarded, and dual-degree students must apply for concurrent graduation for both degrees the same semester. Students who do not maintain dual-degree status may need to take additional coursework if they pursue either degree separately after being admitted to the dual-degree program.

Professors

Penelope Muse Abernathy, Knight Chair in Journalism and Digital Media Economics; Digital Media, Economics
Francesca Carpentier, James H. Schumaker Professor; Electronic Journalism, Media Effects
Patrick Davison, Julian W. Scheer Term Professor; Visual Communication, Photojournalism
Anne M. Johnston, Parker Distinguished Professor; Media Effects, Women and Media, Political Communication
Susan R. King, Dean; John Thomas Kerr Jr. Distinguished Professor; Women and Media, Political Communication, Broadcast and Electronic Journalism, News Editorial
Thomas R. Linden, M.A. Program Director; Glaxo Wellcome Distinguished Professor of Medical Journalism; Medical Journalism
Seth Noar, Interdisciplinary Health Communication
Daniel Riffe, Richard Cole Eminent Professor; Media Processes and Production
Chris Roush, Walter E. Hussman Sr. Distinguished Professor in Business Journalism News-Editorial Journalism, Business Reporting
John Sweeney, Distinguished Professor in Sports Communication; Advertising, Sports Marketing
Charles A. Tuggle, John H. Stembler Jr. Distinguished Professor; Senior Associate Dean for Undergraduate Studies; Broadcast and Electronic Journalism
Jan Yopp, Walter Spearman Professor; Dean, Summer School; News-Editorial Journalism, Public Relations

Professors of the Practice

Richard Clancy, Edgar Cato Distinguished Professor, Public Relations
Ferrel Guillory, Professor of the Practice of Journalism, Politics and the Media
James Hefner, Professor of the Practice of Journalism, Broadcast and Electronic Journalism
Dana McMahan, Professor of the Practice of Advertising, Advertising

Associate Professors

Debashis Aikat, Media Technology
Spencer Barnes, Visual Communication
Andy Bechtel, Certificate in Digital Communication Program Director; News-Editorial Journalism, Media Ethics
Lois Boynton, Public Relations, Ethics
Nori Comello, Strategic Communication, Identity, and Health
Paul Cuadros, News Reporting
Victoria Ekstrand, Media Law and Ethics
Barbara Friedman, News-Editorial Journalism, Media History
Rhonda Gibson, M.A.D.C. Program Director; Print Journalism, Minorities and Media, Mass Communication Theory
Heidi Hennink-Kaminski, Senior Associate Dean for Graduate Studies; Advertising, Health Communication, Social Marketing
Joe Bob Hester, Advertising
Daniel Kreiss, Ph.D. Program Director; Political Communication, New Media
Suman Lee, Ph.D., International Public Relations, Public Diplomacy, Public Relations Theory
Trevy McDonald, Diversity, Electronic Journalism
Terence Oliver, Visual Communication
Laura Ruel, M.A.T.C. Program Director; Visual Communication
Ryan Thornburg, Reese Felts Distinguished Associate Professor; Director of Reese News Lab, News-Editorial Journalism
Chad Stevens, Visual Communication

Assistant Professors

Lucinda Austin, Public Relations
Joseph Cabosky, Public Relations
Steven King, Multimedia
Allison Lazard, Visual Communication
Adam Saffer, Public Relations
Lisa Villamil, Visual Communication

Lecturers

Joan Cates, Senior Lecturer, Interdisciplinary Health Communication
Valerie Fields, Senior Lecturer, Public Relations
Livis Freeman, Public Relations
Jock Lauterer, Senior Lecturer, News-Editorial Journalism

Professors Emeriti

Harry Amana
Richard J. Beckman
Thomas A. Bowers
Jane D. Brown
Napoleon Byars
Queenie Byars
Richard R. Cole
George W. Cloud
David Cupp
A. Richard Elam
Frank Fee
Jean Folkerts
R. Michael Hoefges
Robert F. Lauterborn
Raleigh Mann
Philip Meyer
Cathy Packer
Carol Reuss
Donald Shaw
Richard Simpson
Dulcie Straughan
Lucila Vargas
Ruth Walden

MEJO

Advanced Undergraduate and Graduate-level Courses

MEJO 421. Television News Reporting and Producing. 3 Credits.
Permission of the instructor. This course covers writing, reporting, and producing television news stories and programs, with emphasis on basic as well as innovative broadcast story forms.
Requisites: Prerequisites, MEJO 121 and 252.
Grading status: Letter grade.

MEJO 424. Media Management and Policy. 3 Credits.
An introduction to media management, generally, and the supervision and motivation of employees, specifically. The course also delves into policy and legal issues impacting modern media operations. It explores the special skills associated with management of media properties in the context of constant change.
Grading status: Letter grade.

MEJO 425. Voice and Diction. 3 Credits.
Designed to help students develop presentation skills and use voices effectively as professional broadcast journalists.
Grading status: Letter grade.

MEJO 426. Audio Journalism for Radio and Podcasts. 3 Credits.
A practicum class in which students work under faculty guidance to produce news stories, features, interviews, sports, and other audio content. Student work is broadcast on "Carolina Connection" -- a weekly radio program -- and is distributed on iTunes and other digital platforms. Students also have the opportunity to produce their own podcasts in the Carroll Hall studios.
Requisites: Prerequisite, MEJO 252.
Grading status: Letter grade.

MEJO 430. Personal Finance. 3 Credits.
Learn the concepts of personal finance including mortgages, credit card management, checking accounts, credit ratings and scores, privacy, retirement planning, and stock market investing to help you successfully navigate your finances after graduation. We will explore the concepts of personal finance and also at looking behind the numbers to spot how the consumer might be taken advantage of financially by banking and other institutions.
Grading status: Letter grade.

MEJO 433. UX Strategy and Design. 3 Credits.
Required preparation, a prior or concurrent visual design course, internship, or work experience demonstrating basic graphic design skills. Immersion in experience design (XD) for products and services with a focus on digital user experience (UX), interface design (UI), analytics and marketing strategies. Students use design thinking, research, data, testing, business models, social media, and optimal conversion to engage diverse audiences. Previously offered as MEJO 336.
Grading status: Letter grade.

MEJO 435. Public Information Strategies. 3 Credits.
This course provides a comprehensive assessment and understanding of the role of public relations professionals throughout government and the nonprofit sector as well. The course examines the unique requirements placed on communicators who are simultaneously responsible for representing their respective organizations while keeping the public informed.
Requisites: Prerequisite, MEJO 137.
Grading status: Letter grade.

MEJO 437. Media in Asia. 3 Credits.
The study of media in Asia, including how news and information are disseminated and used by audiences. Includes a trip to the region as part of the course.
Requisites: Prerequisite, MEJO 137 or 153.
Gen Ed: BN, EE- Study Abroad.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

MEJO 440. Digital Media Law and Society. 3 Credits.
Explains legal issues raised by Internet communication and guides students in thinking critically about how those issues can be resolved. Reviews how courts, other branches of government, the private sector, and legal scholars have responded to the Internet. Topics may include digital copyright, net neutrality, privacy, and Internet censorship abroad.
Requisites: Prerequisite, MEJO 340.
Grading status: Letter grade.

MEJO 441. Diversity and Communication. 3 Credits.
An examination of racial stereotypes and minority portrayals in United States culture and communication. Emphasis is on the portrayal of Native Americans, African Americans, Hispanics, and Asian Americans in the mass media.
Gen Ed: US.
Grading status: Letter grade.

MEJO 442. Gender, Class, Race, and Mass Media. 3 Credits.
The media play a critical role in the construction and contestation of ideas about gender, class, and race. Using a range of methods, students will analyze media messages past and present to understand how gender, race, and class influence media production and consumption.
Gen Ed: SS, US.
Grading status: Letter grade
Same as: WGST 442.

MEJO 443. Latino Media Studies. 3 Credits.
An introductory course to the study of United States Latina/os and the media. It analyzes the media portrayal of Latina/os in United States mainstream media. The course also examines media that cater to Latina/os and explores the way in which Latina/o audiences use the multiple media offerings available to them.
Gen Ed: US.
Grading status: Letter grade.

MEJO 445. Process and Effects of Mass Communication. 3 Credits.
Mass communication as a social process, incorporating literature from journalism, social psychology, sociology, political science, and history. To acquaint students with factors in message construction, dissemination, and reception by audiences.
Gen Ed: SS.
Grading status: Letter grade.

MEJO 446. Global Communication and Comparative Journalism. 3 Credits.
Covers theories explaining the workings of global and local communication systems, the transnational flow of news, and opportunities and challenges that social media and other new platforms pose to the production and distribution of news. It also familiarizes students with the media communication systems of key countries.
Gen Ed: GL.
Grading status: Letter grade.

MEJO 447. Media in the United Kingdom. 3 Credits.
The study of media in the UK including how news and information are disseminated and used by audiences. Includes a trip to the country as part of the course.
Requisites: Prerequisite, MEJO 137 or 153.
Gen Ed: EE- Field Work, GL.
Grading status: Letter grade.

MEJO 448. Freedom of Expression in the United States. 3 Credits.
An examination of the development of freedom of expression in the United States within the context of the nation's history.
Grading status: Letter grade.

MEJO 449. Blogging, Smart Mobs, and We the Media. 3 Credits.
For advanced undergraduates through Ph.D. students. Practical and theoretical approaches to understanding, designing, building, and using virtual communities, including studies of network capital, social capital, and social production.
Grading status: Letter grade.

MEJO 454. Advanced Feature Writing. 3 Credits.
Writing and reporting important topics in in-depth feature articles. Discussion and utilization of writing and reporting techniques in order to complete articles for publication or other dissemination. In-depth instruction and critiques of student work.
Requisites: Prerequisites, MEJO 153 and 356.
Grading status: Letter grade.

MEJO 455. Creative Sportswriting. 3 Credits.
Researching and writing sports stories, including game coverage, magazine features, and opinion columns. Students complete reporting and writing exercises inside and outside of the classroom.
Grading status: Letter grade.

MEJO 458. Southern Politics: Critical Thinking and Writing. 3 Credits.
Interpretive-contextual journalism focused on the trends, issues, and politics that influence democracy in North Carolina, the American South, and the nation. Through readings and the practice of analytical journalism, the course explores government policy making, election campaigns, social and economic trends, ethics, and citizen-leader relationships.
Grading status: Letter grade.

MEJO 459. Community Journalism. 3 Credits.
Comprehensive study of the community press, including policies, procedures, and issues surrounding the production of smaller newspapers within the context of the community in its social and civic setting.
Requisites: Prerequisite, MEJO 153.
Gen Ed: EE- Service Learning, US.
Grading status: Letter grade.

MEJO 463. News Lab: Creating Tomorrow's News Products. 3 Credits.
Students work under faculty guidance to develop and test an idea for a start-up news product. Students will create a prototype, test it on a target market, and compile a business feasibility report for the product. The course emphasizes collaboration among students with a variety of skills and experiences.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

MEJO 469. Health Communication. 3 Credits.
This course covers theory and research underlying effective health communication campaigns. Students will learn about both the development and evaluation of real-world health campaigns.
Grading status: Letter grade.

MEJO 471. Advanced Advertising Copywriting. 3 Credits.
Rigorous, in-depth instruction and critiques of student advertising writing. Permission of the instructor.
Grading status: Letter grade.

MEJO 475. Concepts of Marketing. 3 Credits.
Designed to provide the larger business context for students anticipating careers in advertising, public relations, and other media industries, the course teaches the vocabulary and basic concepts of marketing as it will be practiced.
Grading status: Letter grade.

MEJO 476. Ethical Issues and Sports Communication. 3 Credits.
Permission of the instructor. Ethical dilemmas and decisions in the commercialization and coverage of sports, including the influence of television, pressure to change traditions and standards for monetary reasons, and negative influences on athletes.
Grading status: Letter grade.

MEJO 477. New Media Technologies: Their Impact on the Future of Advertising, Marketing, and Public Relations. 3 Credits.
This course will introduce you to the nontraditional, future vision required to be successful in advertising, marketing, and public relations and the more personal, individualized technologies that will grab people's attention in the future.
Grading status: Letter grade.

MEJO 478. Media Marketing. 3 Credits.
Principles and practices of retail advertising in all media, with emphasis on selling, writing, and layout of retail advertising for the print media.
Requisites: Prerequisite, MEJO 137.
Grading status: Letter grade.

MEJO 479. Market Intelligence. 3 Credits.
Permission of the instructor. This course helps students learn to make better business decisions by teaching contemporary analytical tools to solve brand and advertising problems.
Grading status: Letter grade.

MEJO 482. Media Design. 3 Credits.
Detailed study of page layout and graphics techniques for all forms of news media. Permission of the instructor.
Requisites: Prerequisite, MEJO 182.
Grading status: Letter grade.

MEJO 484. Information Graphics. 3 Credits.
Study and application of graphic design and information-gathering techniques to creating charts, maps, and diagrams.
Requisites: Prerequisite, MEJO 182; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

MEJO 485. Publication Design. 3 Credits.
Detailed study and application of graphic design techniques in magazines, newspapers, advertising, and corporate communication.
Requisites: Prerequisite, MEJO 182; pre- or co-requisite, MEJO 153; permission of the instructor.
Grading status: Letter grade.

MEJO 487. Intermediate Interactive Media. 3 Credits.
Web programming, graphic design, and storytelling for the Web. Students will use HTML5 CSS3, JavaScript, and other Web publishing languages while learning how to design, storyboard, and script an interactive storytelling project. Students will collect and incorporate photos, text, video, graphics, and database information into interactive multimedia presentations. Previously offered as MEJO 586.
Requisites: Prerequisite, MEJO 187.
Grading status: Letter grade.

MEJO 488. Multimedia Storytelling: Carolina Photojournalism Workshop. 3 Credits.
The Carolina Photojournalism Workshop has a dual mission: to provide an immersive, real-world learning experience for students, and to create and publish exceptional multimedia content on the culture of North Carolina that can be a resource for people in our state and the world. Previously offered as MEJO 587.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

MEJO 489. Photojournalism, Lighting, and Business Techniques. 3 Credits.
Students expand their personal photographic vision and professional portfolio by honing their knowledge and skills of studio and location lighting, propping, and styling. Students learn studio and location portraiture and photo illustration and create a photo essay or portrait series. Previously offered as MEJO 181.
Requisites: Prerequisite, MEJO 180.
Grading status: Letter grade.

MEJO 490. Special Topics in Mass Communication. 1-3 Credits.
Small classes on various aspects of journalism-mass communication with subjects and instructors varying each semester. Descriptions for each section available on the school's Web site under Course Details. Honors version available
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

MEJO 490H. Special Topics in Mass Communication. 1-3 Credits.
Small classes on various aspects of journalism-mass communication with subjects and instructors varying each semester. Descriptions for each section available on the school's Web site under Course Details.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

MEJO 522. Producing Television News. 3 Credits.
Permission of the instructor. Students work under faculty guidance to produce "Carolina Week," a television news program, and are responsible for all production tasks such as producing, reporting, anchoring, directing, and others. Previously offered as MEJO 422.
Requisites: Prerequisite, MEJO 421.
Grading status: Letter grade.

MEJO 523. Broadcast News and Production Management. 3 Credits.
Students participate in a collaborative learning environment to hone skills learned in earlier courses and help less-experienced students acclimate to the broadcast news experience within the school. By invitation only. Previously offered as MEJO 423. Permission of the instructor.
Grading status: Letter grade.

MEJO 530. Green Brand Lab. 3 Credits.
Development and design of creative strategies for green products and good services. Students innovate environmentally sustainable products, services, and processes that lead to brand loyalty and positive impact. Triple bottom line: social, ecological and financial strategies, brand development, advocacy communications, research, data, and storytelling come together to make the world a better place. Course previously offered as MEJO 335.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

MEJO 531. Case Studies in Public Relations. 3 Credits.
Helps students think as public relations professionals who deal with the demanding, dynamic environment of corporate, government, and nonprofit public relations. Students examine real-world situations and strategies, discussing factors that affect how public relations is practiced in organizations, including identifying stakeholder groups, developing strategies, embracing diversity, and recognizing ethical issues. Previously offered as MEJO 431.
Requisites: Prerequisite, MEJO 137.
Grading status: Letter grade.

MEJO 533. Crisis Communication. 3 Credits.
Provides an assessment and understanding of crises, examining the role public relations professionals play in helping organizations use mass communication theories and best practices. Includes media training. Introduces students to areas of crisis research, allowing them to complete the Federal Emergency Management Agency's National Incident Management System certification. Previously offered as MEJO 433.
Requisites: Prerequisite, MEJO 137.
Grading status: Letter grade.

MEJO 541. Economics Reporting. 3 Credits.
Permission of the instructor. Coverage of Wall Street and the economy, including stocks, bonds, and economic indicators. Reporting on the Federal Reserve, labor, consumer sector, manufacturing and inflation, and certain industries. Previously offered as MEJO 451.
Requisites: Prerequisite, MEJO 153.
Grading status: Letter grade.

MEJO 542. Business Reporting. 3 Credits.
Methods and tactics of covering businesses for mass communication. Why and how companies operate and how to write stories about corporate news from public records and other sources. Previously offered as MEJO 452.
Requisites: Prerequisite, MEJO 153.
Grading status: Letter grade.

MEJO 550. Business and the Media. 3 Credits.
Role of media in United States society and effects on public perceptions of business. Relationship of business press and corporate America. Current issues in business journalism. Previously offered as MEJO 450.
Grading status: Letter grade.

MEJO 553. Advanced Reporting. 3 Credits.
Rigorous, in-depth instruction and critiques of students' news and feature assignments done with different reporting methodologies: interviewing, official records, direct and participant observation, and survey research (the Carolina Poll). Previously offered as MEJO 453.
Requisites: Prerequisites, MEJO 153 and 253.
Grading status: Letter grade.

MEJO 557. Advanced Editing. 3 Credits.
Concentration on the editing of news, opinion, features, and sports for print and digital media. Analysis of the writer-editor relationship. Previously offered as MEJO 457.
Requisites: Prerequisite, MEJO 157.
Grading status: Letter grade.

MEJO 560. Environmental and Science Journalism. 3 Credits.
Prepare students to work as environmental and science journalists. The course emphasizes writing skills in all delivery formats and interpreting environmental, science, and medical information for consumers. Honors version available
Grading status: Letter grade
Same as: HBEH 660, HPM 550.

MEJO 560H. Environmental and Science Journalism. 3 Credits.
Prepare students to work as environmental and science journalists. The course emphasizes writing skills in all delivery formats and interpreting environmental, science, and medical information for consumers.
Grading status: Letter grade
Same as: HBEH 660H, HPM 550H.

MEJO 561. Environmental and Science Video Storytelling. 3 Credits.
Students work in teams to produce, shoot, script, and report environmental, science, and medical stories for broadcast on "Carolina Week", the award-winning, student-produced television newscast.
Grading status: Letter grade
Same as: HBEH 561, HPM 551.

MEJO 562. Environmental and Science Documentary Television. 3 Credits.
Students work in teams to conceive, produce, and script mini-documenties on environmental and science topics for broadcast on North Carolina Public Television.
Grading status: Letter grade
Same as: HBEH 562, HPM 552.

MEJO 564. Medical and Science Reporting. 3 Credits.
Required preparation, a second reporting or writing course. Focuses on developing strategies to research and write about medical issues, specifically selecting topics, finding and evaluating sources, and information gathering. Students produce a range of stories, from short consumer pieces to in-depth articles.
Requisites: Prerequisite, MEJO 153.
Grading status: Letter grade.

MEJO 565. Environmental Storytelling. 3 Credits.
An interdisciplinary course for students interested in environmental issues or journalism to produce stories about environmental issues that matter to North Carolinians. Students learn to identify credible sources, manage substantial amounts of information, and find story focus as they report on technical and often controversial subjects in a variety of media.
Grading status: Letter grade
Same as: ENEC 565.

MEJO 570. Data Driven Journalism. 3 Credits.
An introduction to basic statistics and numerical and mathematical literacy, as well as a look at professional data-driven journalism projects. Students who successfully complete this course will be able to acquire, organize, analyze, and present data to a general news audience. Previously offered as MEJO 460.
Gen Ed: QI.
Grading status: Letter grade.

MEJO 571. Social Media Analytics. 3 Credits.
An introduction to the analysis of textual data using computer programming-based (so-called "Big Data") methods. Students will learn how to use code (or social listening tools) to analyze and visualize large datasets drawn from traditional and/or social media. No prior programming experience is required.
Grading status: Letter grade.

MEJO 572. Art Direction in Advertising. 3 Credits.
This course provide students with finished advertising for their portfolios through visual theory instruction, creative exercises, and strategy application. Previously offered as MEJO 472.
Grading status: Letter grade.

MEJO 577. The Branding of Me. 3 Credits.
What have you done to brand yourself? Students will use YouTube, Twitter, and Facebook in a calculated plan with other new-media marketing tools to land that first job. Previously offered as MEJO 474.
Requisites: Prerequisite, MEJO 477.
Grading status: Letter grade.

MEJO 580. Photo Stories. 3 Credits.
Advanced course in photojournalism content gathering, history, ethics and storytelling. Students shoot advanced newspaper and magazine assignments and create short multimedia stories combining photography, audio, and video. Previously offered as MEJO 480. Permission of the instructor.
Grading status: Letter grade.

MEJO 581. User Experience Design and Usability. 3 Credits.
Theory and practice of user experience design with an emphasis on usability, design theory, aesthetic design, and evaluative methodologies, including analytics and eye tracking research. Permission of the instructor.
Grading status: Letter grade.

MEJO 582. Advanced Documentary Video Storytelling. 3 Credits.
Students learn how to gather audio and video content, editing and storytelling techniques, and how to publish these media onto a variety of multimedia platforms. Permission of the instructor.
Requisites: Prerequisites, MEJO 121 and 180.
Grading status: Letter grade.

MEJO 583. Advanced Interactive Media. 3 Credits.
Advanced course in multimedia programming languages that includes designing and building dynamic projects. Permission of the instructor.
Requisites: Prerequisite, MEJO 487.
Grading status: Letter grade.

MEJO 584. International Projects. 3 Credits.
Permission of the instructor. Students work on a semester-long documentary multimedia project in an international location that includes photo and video journalists, audio recordists, designers, infographics artists, and programmers. Open by application to students who have completed an advanced course in visual or electronic communication.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

MEJO 585. 3D Design Studio. 3 Credits.
The use of 3D design and animation to create visual explanations. Permission of the instructor.
Grading status: Letter grade.

MEJO 588. Emerging Technologies. 3 Credits.
This course will introduce students to storytelling with emerging technologies such as Augmented Reality, Virtual Reality, 360 Video, robots, drones, and other new technologies. Students will have the opportunity to learn and work with the latest VR hardware and create experiences for those platforms. Previously offered as MEJO 660.
Grading status: Letter grade.

MEJO 589. Motion Graphics. 3 Credits.
Detailed study and application of motion-graphic techniques that utilize the combination of words, photos, graphics, video, sound, and voice-overs to convey stories for news and entertainment. Students learn Adobe After Effects software and the art of storytelling to enable them to conceptualize and execute digital animations. Previously offered as MEJO 486. Permission of the instructor.
Requisites: Prerequisite, MEJO 182.
Grading status: Letter grade.

MEJO 591. Workroom FashionMash Experiential Design. 3 Credits.
The course combines a development workshop with a professional industry project, giving students unprecedented access to working creatives, industry trendsetters, and decision makers. In Workroom students will think, write, and execute their creative ideas. Previously offered as MEJO 650.
Grading status: Letter grade.

MEJO 592. Workroom FashionMash Product Design. 3 Credits.
The course combines a development workshop with a professional industry project, giving you unprecedented access to working creatives, industry trendsetters and decision makers. In Workroom you will not simply think and write about your creative ideas, instead, this class is completely focused on execution. Previously offered as MEJO 651.
Grading status: Letter grade.

MEJO 596. Individual Study. 3 Credits.
Permission of the instructor. An individual readings and problems course to be directed by a faculty member in whose field of interest the subject matter lies.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

MEJO 602. Teaching Journalism in the Secondary School. 3 Credits.
Graduate standing. Readings, discussion, and projects fostering excellence in teaching journalism-mass communication in the high school, from philosophy and practice to professional skills.
Grading status: Letter grade.

MEJO 603. Mass Communication Law in the Secondary School. 3 Credits.
Graduate standing. Application of First Amendment speech and press freedoms to secondary school media, including libel, privacy, access to information, journalistic privilege, prior restraint, advertising and broadcast regulations, and ethical practices.
Grading status: Letter grade.

MEJO 604. Mass Communication Writing and Editing in the Secondary School. 3 Credits.
Graduate standing. High school journalism teachers and advisors learn to teach the skills journalists need to communicate. Emphasis on writing and thinking skills necessary to convert information into clear messages.
Grading status: Letter grade.

MEJO 605. Design and Production of Secondary School Publications. 3 Credits.
Graduate standing. High school journalism teachers and advisors learn to teach the skills journalists need to produce publications. Designed for persons with no background in design. Degree-seeking students may not use both MEJO 182 and 605 to complete degree requirements.
Grading status: Letter grade.

MEJO 625. Media Hub. 3 Credits.
Permission of the department. Students will work together to find, produce, and market stories that would attract the attention of professional media partners throughout the state and region, and at times, the nation. This hands-on course mimics the professional journalist's work environment more than any other class in the school.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

MEJO 630. Business News Wire. 3 Credits.
This course teaches students how a news wire operates. Students will report stories about North Carolina companies on a real-time basis and market those stories to state media via e-mail and a Web site.
Grading status: Letter grade.

MEJO 631. Business Journalism Management. 3 Credits.
Learn how to oversee and manage a business news wire, including distribution of content to media organizations, managing an e-mail newsletter, and handling social media. Also involves some reporting and writing.
Grading status: Letter grade.

MEJO 634. Public Relations Campaigns. 3 Credits.
In this capstone experience, students apply concepts and skills from earlier classes to develop a campaign plan for a client organization. Activities include conducting background and audience research; developing realistic objectives, strategies, tactics, and evaluation plans; producing a portfolio of supporting materials; and pitching the campaign to the client. Previously offered as MEJO 434.
Requisites: Prerequisites, MEJO 332 and 379.
Grading status: Letter grade.

MEJO 652. Digital Media Economics and Behavior. 3 Credits.
The course will focus on the changing economics affecting 21st-century news organizations and the economic drivers of other content providers such as music companies, the film industry, online aggregators, and commerce sites for lessons that can be applied across industry segments. Previously offered as MEJO 551.
Grading status: Letter grade.

MEJO 653. Leadership in a Time of Change. 3 Credits.
During a time of fast-paced technological innovation, this course examines the critical strategic choices facing media executives. Students will observe and research a media company that is making the transition, as well as produce a case study on that effort. Previously offered as MEJO 552.
Requisites: Prerequisite, MEJO 452, 475 or 652.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

MEJO 656. Magazine Writing and Editing. 3 Credits.
Instruction and practice in planning, writing, and editing copy for magazines. Previously offered as MEJO 456.
Requisites: Prerequisites, MEJO 153 and 356.
Grading status: Letter grade.

MEJO 670. Digital Advertising and Marketing. 3 Credits.
This course provides the practical knowledge and insights required to establish digital advertising and marketing objectives and strategies, properly select the earned and paid media platforms, and monitor and measure the results of those efforts. Previously offered as MEJO 470.
Requisites: Prerequisite, MEJO 379.
Grading status: Letter grade.

MEJO 671. Social Marketing Campaigns. 3 Credits.
Social marketing is the application of marketing concepts and practices to bring about behavior change for a social good. This course is designed as a service-learning course and fulfills the experiential education requirement.
Gen Ed: EE- Service Learning.
Grading status: Letter grade.

MEJO 673. Advertising Campaigns. 3 Credits.
Planning and executing advertising campaigns; types and methods of advertising research; the economic function of advertising in society. Previously offered as MEJO 473.
Requisites: Prerequisite, MEJO 371 or 372.
Grading status: Letter grade.

MEJO 674. PRSSA Campaigns. 3 Credits.
This capstone class helps you integrate what you¿ve learned in prior classes and apply those skills in researching, planning, and implementing a public relations plan for a real-world client selected by national PRSSA for the annual Bateman competition. Permission of the instructor.
Grading status: Letter grade.

MEJO 681. Photojournalism Projects. 3 Credits.
Permission of the instructor. Students study the documentary tradition and produce stories within the social documentary genre of photojournalism. Students choose a relevant social issue and create a multimedia Web site featuring long-form documentary storytelling. Previously offered as MEJO 481.
Requisites: Prerequisite, MEJO 580.
Grading status: Letter grade.

MEJO 683. Magazine Design. 3 Credits.
Permission of the instructor. Detailed study of page layout and graphics techniques in magazines. Previously offered as MEJO 483.
Requisites: Prerequisite, MEJO 482.
Grading status: Letter grade.

MEJO 690. Special Topics in Advertising. 1-3 Credits.
Courses on special topics in advertising with subjects and instructors varying each semester.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

MEJO 691H. Introductory Honors Course. 3 Credits.
Permission of the instructor. Required of all students reading for honors in journalism.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

MEJO 692H. Honors Essay. 3 Credits.
Permission of the instructor. Required of all students reading for honors in journalism.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

MEJO 701. Strategic Communication Research Methods. 3 Credits.
Covers theoretical and methodological concepts for interpreting and evaluating applied research in communications. Course content includes a broad range of types of communication research, including laboratory and field experiments, surveys, content analysis, interviewing, focus groups, and ethnography. Students will learn how to interpret and use the results of social science research in professional work and evaluate the methodological choices in applied research.
Grading status: Letter grade.

MEJO 702. Mass Communication Pedagogy. 1-3 Credits.
Investigation of college teaching and academic life, including course planning, syllabus preparation, interpersonal skills, presentational modes, evaluation, and ways of balancing teaching with other expectations.
Grading status: Letter grade.

MEJO 703. Mass Communication Research Methods. 3 Credits.
Covers a broad range of research methods used in industry and academic research. Course content includes the process and organization of writing research; applying a variety of quantitative and qualitative research methods; evaluating research design; and ethical issues inherent in research. Required course for all doctoral students and theory and research master's students.
Grading status: Letter grade.

MEJO 704. Statistics for Social Science Research. 3 Credits.
Permission of the instructor for students lacking the prerequisite. Course examines when and why to use particular statistical tests to address a given research question and provides a framework for understanding research that uses quantitative methods. Prior knowledge of statistics NOT assumed.
Requisites: Prerequisite, MEJO 701.
Grading status: Letter grade.

MEJO 705. Theories of Mass Communication. 3 Credits.
In this course, students receive a broad introduction to the major theoretical perspectives in the field of communication and learn to apply them to their own research. Required of doctoral students and master's students in the theory and research area of study.
Grading status: Letter grade.

MEJO 711. Writing for Digital Media. 3 Credits.
Communication in digital/online environments - learning/understanding the audience(s); how different media work (their unique limits/possibilities); developing appropriate content for different formats/environments. Students analyze technical/rhetorical elements of online content (i.e., interactivity, hyperlinking, spatial orientation, nonlinear storytelling). Limited to students admitted to Certificate in Technology/Communication program and MEJO graduate students.
Grading status: Letter grade.

MEJO 712. Visual Communication and Multimedia. 3 Credits.
This course provides an understanding of current visual communication and multimedia storytelling theories and practices. Students will read scholarly and professional publications and critique media work across disciplines. A final project includes the creation of an original article or multimedia presentation that adds to the knowledge base in this area.
Grading status: Letter grade.

MEJO 713. Digital Data and Analytics. 3 Credits.
This course explores the fundamental concepts and principles that underlie techniques for extracting useful information and knowledge from digital data. The primary goal of the course is to help you view problems from a data perspective and understand how to systematically analyze such problems.
Grading status: Letter grade.

MEJO 714. Database and Web Research. 3 Credits.
Online research often means going to Google and entering search terms. What strategies might improve the effectiveness of your research? What about authority and timeliness of information? This course answers those questions and others. Enrollment limited to students admitted to Certificate in Technology/Communication program and MEJO graduate students.
Grading status: Letter grade.

MEJO 715. New Media and Society. 3 Credits.
This course examines digital environments from diverse conceptual perspectives (e.g., journalism, mass communication, psychology, information science and technology, sociology, business) and outlines theoretical implications and practical applications of new media.
Grading status: Letter grade.

MEJO 716. Research Methods and Applications. 3 Credits.
This course is designed to help communication professionals make better and more informed research decisions given compelling research challenges and resource constraints.
Grading status: Letter grade.

MEJO 717. Visual Communication and Information Architecture. 3 Credits.
This course explores the overlap between several related disciplines: information visualization and architecture, cognitive science, graphic design and journalism. Content covered includes cognitive psychology, information design, visualization, and ethics.
Grading status: Letter grade.

MEJO 718. Media Law for the Digital Age. 3 Credits.
This course identifies and explains complex legal issues raised by Internet technology and guides students in thinking critically about how those issues can best be resolved.
Grading status: Letter grade.

MEJO 719. Leadership in Digital Media Economics. 3 Credits.
This course examines the broad economic issues facing the media industry, including the changing dynamics of consumer behavior, pricing, loyalty, market segmentation, creative destruction, economic cycles and global competition.
Grading status: Letter grade.

MEJO 720. Strategic Communication. 3 Credits.
Underpinned by appropriate theory, this course examines strategic communication in today's cluttered information environment. While developing strategic communication programs, students will analyze case studies and research comprehensive digital-influence strategies.
Grading status: Letter grade.

MEJO 721. Usability and Multimedia Design. 3 Credits.
Introduces students to five basic areas of multimedia design and develops expertise in each. By examining the latest eye-tracking research and usability testing, students will assess the practical application of many concepts. Through critiques and original storyboards, students will work to expertly integrate all this knowledge into well-designed packages.
Grading status: Letter grade.

MEJO 730. Public Relations Foundations. 3 Credits.
Introduction to the growing field of public relations practice: its history, legal and ethical issues, types and areas of practice, and construction of public relations campaigns. Must be used as a basic competency class by master's students. This course cannot be counted toward a program of study for doctoral students.
Grading status: Letter grade.

MEJO 732. Public Relations and Strategic Writing. 3 Credits.
Graduate-level public relations writing course that provides hands-on practice in developing multi-platform communication tools used by public relations practitioners. News writing module completed as part of this course.
Requisites: Prerequisite, MEJO 730.
Grading status: Letter grade.

MEJO 740. Media Law. 3 Credits.
Survey media law areas: First Amendment, libel, privacy, intellectual property, corporate and commercial speech, media and judiciary, confidential sources, freedom of information, electronic and new media regulation, international issues. Semester topics may vary with class interests. Conduct legal research, identify/analyze secondary and primary legal resources, produce original graduate-level legal research.
Grading status: Letter grade.

MEJO 742. Readings in Mass Communication History. 3 Credits.
Directed readings in mass communication history. Required course for Ph.D. students.
Grading status: Letter grade.

MEJO 743. Media Management. 3 Credits.
A study of planning policy functions related to media management concerns.
Grading status: Letter grade.

MEJO 752. Leadership in a Time of Change. 3 Credits.
Required preparation, students should have taken a core business course or have equivalent professional experience before enrolling. Examines critical strategic choices facing media executives and offers students the opportunity to observe and research a media company making the transition and produce a case study on that effort.
Grading status: Letter grade.

MEJO 753. Reporting and Writing News. 3 Credits.
Provides study and practice of the primary activities of a print journalist: gathering the news and writing about it for publication. Must be used as a basic competency class by master's students. This course cannot be counted toward a program of study for doctoral students.
Grading status: Letter grade.

MEJO 754. Specialized Reporting. 3 Credits.
Reporting of complicated topics, using in-depth backgrounding, investigative reporting techniques, story conferences and documents, and other research data. Required of news-editorial master's students who plan to complete the articles option.
Requisites: Prerequisite, MEJO 753; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

MEJO 755. Narrative Journalism. 3 Credits.
This course focuses on examining and producing long-form, non-fiction stories in a narrative style for preparation for publication or production. Discussion and examination of the history, style, and differing platforms of non-fiction storytelling will be explored and will include in-depth instruction and review of student work. Required for master's students in the journalism area of study.
Grading status: Letter grade.

MEJO 782. Multimedia Storytelling. 3 Credits.
Theories and practices of multimedia content creation. Students gain critical understanding of various multimedia presentation methods. Hands-on experience with audio/video collection/editing.
Grading status: Letter grade.

MEJO 790. Special Skills in Mass Communication. 1-3 Credits.
Courses on various skills in journalism-mass communication with subjects varying each semester. This course satisfies a skills- or craft-course requirement. Descriptions for each section available on the school's Web site under Course Details.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 3 total completions.
Grading status: Letter grade.

MEJO 795. E-Health. 3 Credits.
An overview of the positive and negative impacts of the Internet on public health. Covers research, evaluation sites, ethics, and use of theory that addresses key public health problems.
Grading status: Letter grade
Same as: HBEH 795.

MEJO 801. Professional Seminar in Doctoral Studies. 3 Credits.
Examines the role of doctoral studies in the academy; the components of scholarly writing, the expectations of someone studying for a Ph.D.; and the research, teaching, and service responsibilities of a university professor.
Grading status: Letter grade.

MEJO 810. Seminar in the Psychology of Human-Computer Interaction. 3 Credits.
Examines effects of computers, the Internet and World Wide Web from a psychological perspective. Adopts an empirical approach to understand ways in which people respond to computers and new technologies.
Grading status: Letter grade.

MEJO 811. Persuasion and Social Influence. 3 Credits.
Examines social-scientific theories and concepts related to persuasion and social influence in communications. Topics include antecedents to behavior; automatic processing; source and receiver characteristics; and campaigns.
Grading status: Letter grade.

MEJO 825. Seminar in Interdisciplinary Health Communication. 3 Credits.
Permission required for nonmajors. Interdisciplinary overview of communication theory and research and critical analysis of applications of theory to interventions using communication for health.Three hours per week.
Requisites: Prerequisite, HBEH 730.
Grading status: Letter grade
Same as: HBEH 825.

MEJO 826. Interdisciplinary Health Communication Colloquium. 1.5 Credit.
Open to Interdisciplinary Health Communication graduate certificate and master's track students only. This course is structured for interactive student/faculty discussion on health communication research and practice. Seminar and online blog format.
Repeat rules: May be repeated for credit.
Grading status: Letter grade
Same as: HBEH 826.

MEJO 830. Public Relations Theory & Research. 3 Credits.
Readings, discussions, and research that explores theoretical foundations of public relations and strategic communication and how they are applied academically and professionally.
Grading status: Letter grade.

MEJO 840. Seminar in Media Law. 3 Credits.
Explore free expression theory, research media law perspective and methods. First Amendment theories and interpretations, exposition to, and critical evaluation of, legal research in communication. Identify legal research question, produce paper, and present findings in a scholarly convention presentation and/or publication.
Requisites: Prerequisite, MEJO 740; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

MEJO 841. Issues in Media and Society. 3 Credits.
Readings, discussion, and papers on the roles and responsibilities of mass communication in society.
Grading status: Letter grade.

MEJO 842. Seminar in Mass Communication History. 3 Credits.
Readings, discussion, and projects in mass communication history.
Grading status: Letter grade.

MEJO 843. Theory & Research in Media Processes and Production. 3 Credits.
Explores psychological, ideological, demographic, professional, organizational, economic, and social characteristics that influence the processes and production of communication content.
Grading status: Letter grade.

MEJO 846. Seminar in International Communication. 3 Credits.
Reading and research in selected topics. Focus in recent years has included global news flow, communication and social change, communication in the collapse of communism, Western dominance in international communication, global culture, and the influence of technology.
Requisites: Prerequisite, MEJO 446; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: POLI 846.

MEJO 847. Communication for Social Justice. 3 Credits.
Examines the role of media and communication projects in advancing social justice goals. Surveys canonical literature and introduces students to the most recent approaches. Traditionally, the field has considered Global South projects and grassroots communication; this course pays attention to projects and programs for underserved populations of the Global North.
Grading status: Letter grade.

MEJO 850. Seminar in Qualitative Methods. 3 Credits.
Survey of naturalistic methods applied to mass communication research, including ethnography, in-depth interviews, life histories, and text-based analysis.
Requisites: Prerequisite, MEJO 701.
Grading status: Letter grade.

MEJO 860. Seminar in Content Analysis. 3 Credits.
Students will use appropriate research designs to collect content data for coding and analysis, conceptual and operational definitions of variables for coding, reliability testing of coding protocol and procedures, and appropriate statistical analysis of collected data. Additionally, students will select a topic, produce a content analysis study, and submit the study to a peer-reviewed convention or journal.
Grading status: Letter grade.

MEJO 861. Seminar in Survey Research Methods. 3 Credits.
An in-depth look at survey research methods through extensive reading on the method's technical points, critique of published survey-based studies, and "hands-on" participation in different phases of the method's application.
Grading status: Letter grade.

MEJO 862. Experimental Design. 3 Credits.
This course focuses on the methodological and design issues in planning an experiment. Students will design an experiment using a step-by-step process to address conceptual challenges for exploring cause-and-effect relationships.
Grading status: Letter grade.

MEJO 870. Seminar in Social and Economic Problems in Advertising. 3 Credits.
Readings, discussion, and papers on advertising as a social and economic force in contemporary society.
Grading status: Letter grade.

MEJO 879. Seminar in Advertising Research. 3 Credits.
Readings and discussion examining theories underlying advertising and the testing of those theories through research projects.
Grading status: Letter grade.

MEJO 890. Seminar in Special Topics in Mass Communication. 3 Credits.
Seminar on various aspects of mass communication, with content and instructors varying each semester.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

MEJO 900. Reading and Research. 1-3 Credits.
Permission of the instructor. Advanced reading or research in a selected field.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

MEJO 992. Master's (Non-Thesis). 3 Credits.

MEJO 993. Master's Research and Thesis. 3 Credits.

MEJO 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY (GRAD)

Contact Information

Department of Microbiology and Immunology
Visit Program Website (http://med.unc.edu/microimm)

William E. Goldman, Chair

The Department of Microbiology and Immunology, an administrative division of the School of Medicine, is a unit of The Graduate School. It offers instruction leading to the doctor of philosophy degree. A terminal master of science degree is granted only under special conditions. The department is highly regarded in many scientific disciplines, including immunology, microbial pathogenesis, virology, infectious diseases, host/pathogen interactions, molecular genetics, prokaryotic and eukaryotic molecular and cellular biology, and cancer biology. Research in the department is supported by funds from the University, the National Institutes of Health, the National Science Foundation, the American Cancer Society, and other private foundations and granting agencies.

Research Environment

The Department of Microbiology and Immunology consists of approximately 60 faculty members with active research laboratories, 60 graduate students, 90 postdoctoral scientists, 20 research staff, and 10 administrative staff, who together form a highly interactive, friendly, and collaborative community.

The department occupies the entire sixth floor (~25,000 net square feet) of the new Marsico Hall, as well as the recently renovated ninth floor of the Burnett-Womack Building. A significant number of faculty members who hold primary appointments in the department have laboratories in the nearby Lineberger Comprehensive Cancer Center as well as other departments within the School of Medicine and Gillings School of Global Public Health.

A variety of modern equipment is available in individual laboratories or shared by multiple users throughout the department. Well-equipped research laboratories are supplemented by specialized rooms dedicated to tissue culture, controlled temperature environments, BSL3 physical containment for research on microbial select agents, supervised animal care, etc. In addition, the University operates an extensive network of core facilities with major equipment and expert support staff, including flow cytometry, genomics, proteomics, oligonucleotide synthesis, DNA sequencing, X-ray crystallography, NMR, animal models (transgenic mouse and embryonic stem cell services), animal histopathology, bioinformatics, gene chips, confocal microscopy, electron microscopy, and mass spectrometry.

The department is fully supplied with high-speed Internet connections (both wired and wireless). University libraries provide electronic access to thousands of professional journals.

Admission

Students seeking admission to the Department of Microbiology and Immunology apply to BBSP, a common portal by which students interested in any of the 14 participating graduate programs begin their studies at UNC–Chapel Hill. To apply, prospective students should visit the BBSP (http://bbsp.unc.edu/admissions) and graduate admissions (http://gradschool.unc.edu/admissions) Web sites, fill out the online application, and select Microbiology and Immunology as their first choice of interest.

Financial Assistance

All Ph.D. students making satisfactory degree progress receive a stipend plus in-state tuition, fees, and health insurance. Funds are available from individual research grants, training grants, the department, and the University. Students are encouraged to apply for a predoctoral fellowship from the National Institute of Health, the National Science Foundation, or other organizations.

As is the case for all graduate students in the basic science departments of the UNC School of Medicine, education during the first year is under the guidance of the interdisciplinary Biological and Biomedical Sciences Program (BBSP). Students rotate through three different research laboratories of their choosing in year one. For students interested in microbiology and immunology, recommended classroom courses include Immunobiology (MCRO 614), Virology (MCRO 630), Microbial Pathogenesis I (MCRO 635), and Microbial Pathogenesis II (MCRO 640).

Upon choosing a dissertation laboratory and joining the Department of Microbiology and Immunology, students are provided with an outstanding learning environment, an opportunity to conduct cutting-edge research, and most importantly, thorough preparation for a successful career in science. The microbiology and immunology Ph.D. program is designed to provide a foundation of fundamental knowledge in modern microbiology and immunology, foster critical scientific thinking, develop written and oral communication skills, allow students to gain teaching experience, and offer opportunities to travel and present posters or talks at national meetings. Specific components of the microbiology and immunology Ph.D. training program include:

- Completion of six relevant courses, including two courses based directly on discussion of the primary literature (e.g., MCRO 710, MCRO 711, MCRO 712), and MCRO 795 are required. Students typically finish four of the six classes while in BBSP and the remainder during year two. There is no language requirement.
- The written preliminary exam (also known as the doctoral written examination) consists of an original non-thesis research proposal, written in a format similar to an NIH pre- or postdoctoral fellowship proposal. The proposal is written whenever the student likes over the course of the spring semester.
- The oral preliminary exam (also known as the doctoral oral examination) centers on the topic of the thesis project and provides an opportunity for the student to demonstrate his or her ability to discuss the fields of science related to the thesis proposal, as well as the ability to analyze problems and design experiments. The exam serves a dual purpose as the initial meeting of the thesis committee. Therefore, a separate decision to approve or disapprove the thesis project will occur in the same meeting.

Students must regularly attend weekly student and departmental seminars (MCRO 701) beginning in year two and present their research annually in the student seminar series beginning in year three.

Students act as teaching assistants for two semesters in department-approved courses, typically in years two and three.

Students form a dissertation committee in the middle of year three, obtain approval of their dissertation project, and meet annually with their committee to discuss research progress. Completion of sufficient original research for at least two first-author papers in high-quality peer reviewed journals is expected. As a minimum standard, to earn the Ph.D. degree we *require* that

- A student must make meaningful contributions to and be an author on at least two manuscripts intended for publication in respected, high-quality professional journals or books,
- At least one of the two manuscripts must be accepted for publication, and
- Prior to the private Ph.D. defense, a student must have peer reviews returned for at least one first- (or co-first) author primary research manuscript.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Ralph Baric (76), Molecular Mechanisms of Virus Cross-Species Transmissibility and Systems Genetics and Pathogenesis[1]
Robert Bourret (64), Signal Transduction in Bacteria
Miriam Braunstein (80), Bacterial Pathogenesis, Molecular Genetics, Tuberculosis
Wesley Burks (102), Allergic Diseases, Mechanisms and Immunotherapy[1]
Bruce Cairns (93), Immune Response to Injury, Cellular Immunology, Transplantation[1]
Myron S. Cohen (55), Biology and Epidemiology of Transmission of STD Pathogens (Including HIV)[1]
Peggy Cotter (97), Microbial Pathogenesis, Molecular Genetics, Protein Secretion
Blossom Damania (79), Kaposi's Sarcoma-Associated Herpesvirus (KSHV/HHV-8), Rhesus Monkey Rhadinovirus (RRV)
Jeff Dangl (87), Plant Genetics, Plant Microbiome, Plant Disease Resistance and Cell Death Control, Bacterial Type III Secretion Systems[1]
Toni Darville, (117) Chlamydia Trachomatis Pathogenesis and Immune Protective Mechanisms[1]
Aravinda de Silva (73), Arthropod Vector-Borne Infectious Diseases and Microbial Pathogenesis
Dirk Dittmer (88), West Nile Virus (WNV) and Kaposi's Sarcoma-Associated Herpesvirus (KSHV/HHV-8)
Gianpietro Dotti (112), Cancer Immunotherapy, Genetic Engineering; T-Cell Therapies, Tumor Microenvironment
J. Victor Garcia-Martinez (101), Viral Pathogenesis/Immunology, Humanized Mice, HIV/AIDS[1]
Peter H. Gilligan (51), Bacterial Toxins, Clinical Microbiology[1]
William E. Goldman (95), Pathogenesis of Respiratory Tract Infections: Histoplasmosis, Pertussis, and Plague
Jack Griffith (35), Chromosome Structure: Viruses and Their Host Cells
Mark Heise (83), Molecular Genetics of Viral Pathogenesis[1]
Ilona Jaspers (106), Respiratory Viruses, Host Innate Defense in the Respiratory Mucosa, Virus-Host Cell Interaction, Epithelial-Immune Cell Interaction, Environmental Effects[1]
Tal Kafri, Development of HIV-Based Vector for Gene Therapy, Epigenetics of HIV and HIV-1 Vectors, Basic Biology of Nonintegrating HIV-1 and HIV-1 Vectors
Stanley M. Lemon (59), Molecular Virology, Innate Immunity, Viral Carcinogenesis[1]
Zhi Liu (91), Biochemistry, Cell Biology, and Immunology of Hemidesmosome and Basement Membrane[1]
David M. Margolis (90), Regulation of Gene Expression, Molecular Biology of Retroviruses, HIV Pathogenesis[1]
Steven R. Meshnick (81), Malaria and Tick-Borne Diseases, Molecular Epidemiology, Pathogenesis, Drug Resistance[1]
Virginia L. Miller (96), Molecular and Genetic Analysis of Microbial Pathogenesis, Virulence Gene Regulation, Host-Pathogen Interactions[1]
Robert A. Nicholas (94), Antibiotic Resistance Mechanisms, Bacterial Genetics, Neisseria gonorrhoeae[1]
Joseph S. Pagano (14), Epstein-Barr Virus and Ubiquitin-Proteasomal Systems, Interferon Regulatory Factors, Invasion and Metastasis and Antiviral Drugs[1]
David Peden, Translational and Clinical Research in Environmental Lung Disease[1]
Matthew Redinbo, Structural and Chemical Biology of Host-Pathogen Contacts[1]
Howard M. Reisner (32), Immunogenetics of Human Plasma Proteins (Particularly IgG and Coagulant Factors VII and IX)[1]
R. Balfour Sartor (77), Etiology and Pathogenesis of Inflammatory Bowel Disease (especially Crohn's Disease and Associated Extraintestinal Manifestations)[1]
Barbara Savoldo (121), Cancer Immunotherapy, T cell viral immunity, T cells based therapies [1]
Jonathan Serody (82), Transplantation and Tumor Immunology[1]
Lishan Su (71), Immune Development, Viral Pathogenesis
Ronald Swanstrom (74), Molecular Biology and Pathogenesis of HIV[1]
Jenny P. Ting (50), Molecular Immunology, Transcription, Signal Transduction, Apoptosis, Neuroimmunology, Transplantation[1]
Roland Tisch (70), Immune Tolerance, T-Cell Antigen Recognition, T-Cell Mediated Autoimmunity, Tumor Antigen-Specific Genetic Vaccines, Type 1 Diabetes
Jennifer Webster-Cyriaque (84), Oral Manifestations of Systemic Disease, Host-Virus Interactions, Viral Oncogenesis, Viral Pathogenesis during Immunosuppression, Signal Transduction, Cellular Biology, Gene Expression[1]
William J. Yount (25), Genetic Control of Antibody Response and Gamma Globulin Synthesis in Humans[1]

Associate Professors

Kristy Ainslie (120), Formulation of Vaccines and Drug Delivery Treatments for Immune Modulation to Treat and Prevent Infectious and Other Diseases[1]
Kristina DeParis (98), Neonatal/Pediatric Immunology; Pathogenesis of Infectious Diseases; HIV and Co-Infections
Jonathan Hansen (110), Inflammatory Bowel Disease, Host-Microbe Interactions, Microbial Adaptation/Evolution, Experimental Colitis[1]
Sam Lai (105), Mucosal Immunity, Antibody Engineering, Antibody Response to Nanomaterials, Targeted Drug Delivery, Bacteriophage Engineering, Vaccines[1]
Glenn Matsushima (68), Molecular Neuroimmunology, Innate Immunity
Edward Miao (107), Innate Immune Detection of Microbial Virulence
Cary Moody (103), Pathogenesis of Human Papillomaviruses
Nathaniel Moorman (104), Molecular Virology, Host Pathogen Interactions, HCMV Pathogenesis
Raymond Pickles (86), Respiratory Viruses, Host Innate Defense in the Airway, Virus-Host Cell Interactions, Gene Therapy for Cystic Fibrosis and Other Lung Diseases
Elizabeth Shank (111), Microbial Interactions[1]
Rita Tamayo (100), Microbial Pathogenesis, Bacterial Genetics, Bacterial Gene Regulation

Barbara J. Vilen (78), Molecular Immunology, Signal Transduction, and B Cell Tolerance
Yisong Wan (103), Regulatory T-Cell and TGF-Beta Signaling Controlled T-Cell Function under Normal and Pathological Conditions
Jason Whitmire, Viral Immunology, Memory T-Cell Differentiation, Vaccines, Inflammation, Microbial Immunology[1]
Matthew C. Wolfgang (89), Microbial Pathogenesis, Bacterial Gene Regulation, Host-Pathogen Interactions
David Zaharoff (119), Vaccine and Immunotherapy Delivery Platforms[1]

Assistant Professors

Janelle Arthur (113), Microbiota, Inflammation and Innate Immunity, Colorectal Cancer
Brian Conlon (115), Antibiotic Resistance, Bacteriology
Nilu Goonetilleke (116), T-Cell Immunology, HIV-1 Immunobiology
Matthew Hirsch, AAV Gene Therapy, Gene Editing, Cellular Response to Foreign DNA[1]
Helen Lazear (114), Innate Immune Mechanisms That Control Flavivirus Pathogenesis
Bo Li (122), Chemical Biology of Bacteria-Host Interactions, Antibiotic Biosynthesis and Discovery[1]
Uma Nagarajan (118), Innate Immune Response to *Chlamydia* Infection and Its Role in Pathogenesis
Benjamin Vincent (123), How Immunogenomics Features Including T-Cell Receptor and B-Cell Receptor Repertoire Characteristics Predict Survival and Response to Immunotherapy in Breast Cancer, Bladder Cancer, and Acute Myeloid Leukemia[1]

Research Professors

Nancy C. Fisher, Flow Cytometry
Marcia M. Hobbs, Pathogenesis of Nonviral Sexually Transmitted Infections (Trichomonas vaginalis, Neisseria gonorrhoeae) and Molecular Diagnostics[1]

Research Associate Professor

Julie A. E. Nelson, Molecular Virology, HIV Evolution and Pathogenesis, HCV Co-Infection, HIV Assay Development and HIV Clinical Trial Virology

Research Assistant Professors

W. June Brickey, Host Immune Responses, Radiation Injury, Expression Profiling
Sarah Joseph
Premkumar Lakshmanane, Structural Biology, Protein Engineering, Diagnostics Development, Drug Design, Antibacterial Discovery
Robert Maile, Cellular Immunology, Burn Immunology, Transplantation, T-Cell Regulation, Bacterial and Viral Infectivity[1]
Karen McKinnon, Dendritic Cell Induction of Tumor Specific CD4 and CD8 T Lymphocytes
Sarah Rowe-Conlon, Antibiotic Mechanism of Action, Chronic Relapsing Bacterial Infections, Antibiotic Tolerance
Sang-Hoon Sin, Mouse Models of Viral Lymphoma
Shaomin Tian, Nanoparticle-Mediated Drug Delivery, Nano-Vaccine Formulation for Infectious Diseases and Cancer Immunotherapy
Kimberly Walker, Microbial Pathogenesis, Bacterial Gene Regulation
Christopher Whitehurst, Epstein-Barr Virus, Ubiquitination/Deubiqutination Processes

Adjunct Assistant Professor

Jennifer Martinez

Professors Emeriti

Steven L. Bachenheimer
Kenneth F. Bott
Janne G. Cannon
Marshall H. Edgell
Susan A. Fiscus
Jeffrey A. Frelinger
Jean Handy
Clyde A. Hutchison III
Robert E. Johnston
David G. Klapper
John E. Newbold
Nancy Raab-Traub
P. Frederick Sparling[1]

[1] *joint faculty members*

MCRO

Advanced Undergraduate and Graduate-level Courses

MCRO 449. Introduction to Immunology. 3 Credits.
This course provides a general overview of the evolution, organization, and function of the immune system. Instruction will be inquiry-based with extensive use of informational and instructional technology tools.
Requisites: Prerequisite, BIOL 205; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: BIOL 449.

MCRO 614. Immunobiology. 3 Credits.
A strong background in molecular biology, eukaryotic genetics, and biochemistry is required. Advanced survey course with topics that include molecular recognition, genetic mechanisms of host resistance, development of cells and cell interactions; hypersensitivity, autoimmunity, and resistance to infection. Course material from textbook and primary literature.
Grading status: Letter grade.

MCRO 630. Virology. 3 Credits.
Required preparation, coursework in molecular biology and cell biology. Current concepts of the chemistry, structure, replication, genetics, and the natural history of animal viruses and their host cells.
Grading status: Letter grade.

MCRO 631. Advanced Molecular Biology I. 3 Credits.
Required preparation for undergraduates, at least one undergraduate course in both biochemistry and genetics. DNA structure, function, and interactions in prokaryotic and eukaryotic systems, including chromosome structure, replication, recombination, repair, and genome fluidity. Three lecture hours a week.
Grading status: Letter grade
Same as: GNET 631, BIOC 631, BIOL 631.

MCRO 632. Advanced Molecular Biology II. 3 Credits.
Required preparation for undergraduates, at least one undergraduate course in both biochemistry and genetics. The purpose of this course is to provide historical, basic, and current information about the flow and regulation of genetic information from DNA to RNA in a variety of biological systems. Three lecture hours a week.
Grading status: Letter grade
Same as: GNET 632, BIOC 632, BIOL 632.

MCRO 635. Microbial Pathogenesis I. 3 Credits.
Permission of the instructor. Required preparation, coursework in molecular biology and genetics. Topics will include aspects of basic bacteriology as well as bacterial and fungal pathogens and mechanisms of disease.
Grading status: Letter grade.

MCRO 640. Microbial Pathogenesis II. 3 Credits.
Permission of the instructor or a fundamental understanding of molecular virology and immunology. Molecular pathogenesis, with a primary focus on viral pathogens. Additional topics include vaccines and genetics of host-pathogen interactions.
Grading status: Letter grade.

MCRO 690. Special Topics in Microbiology or Immunology. 1-15 Credits.
Permission of the department except for department majors. Designed to introduce the student to research methods. Minor investigative problems are conducted with advice and guidance of the staff. Hours and credit to be arranged, any term. May be repeated for credit two or more semesters.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 15 total credits. 5 total completions.
Grading status: Letter grade.

Graduate-level Courses

MCRO 701. Seminar in Microbiology and Immunology. 1 Credit.
Faculty and student seminars on current research in microbiology and immunology.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

MCRO 702. Seminar in Microbiology. 1 Credit.
Seminar on selected topics in microbiology.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

MCRO 710. Seminar/Tutorial in Bacterial and Eukaryotic Microbes. 1-15 Credits.
One or two faculty and a small number of students will consider current research of importance in depth. Emphasis is on current literature, invited speakers, etc., rather than textbooks.
Repeat rules: May be repeated for credit. 15 total credits. 15 total completions.
Grading status: Letter grade.

MCRO 711. Seminar/Tutorial in Animal Virology. 1-15 Credits.
One or two faculty and a small number of students consider current research of importance in depth. Emphasis is on current literature, invited speakers, etc., rather than textbooks.
Repeat rules: May be repeated for credit. 15 total credits. 99 total completions.
Grading status: Letter grade.

MCRO 712. Seminar/Tutorial in Immunology. 1-15 Credits.
One or two faculty and a small number of students consider current research of importance in depth. Emphasis is on current literature, invited speakers, etc., rather than textbooks.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

MCRO 721. Refresher Training in the Responsible Conduct of Research. 1 Credit.
MCRO 721 is a modular course that meets the requirements of the National Institutes of Health for refresher training in the Responsible Conduct of Research. The course involves a mixture of assigned readings, formal presentations by department faculty who are active in research, and small group discussions. The course grade is based on attendance and participation.
Grading status: Letter grade.

MCRO 790. Directed Readings in Prokaryotic Molecular Biology. 1 Credit.
Permission of the instructor or one prior prokaryotic molecular biology course. Directed readings in prokaryotic molecular biology under the direction of a member of the graduate faculty. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

MCRO 791. Directed Readings in Virology. 1 Credit.
Permission of the instructor or one prior virology course. Directed readings in virology under the direction of a member of the graduate faculty. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

MCRO 792. Directed Readings in Immunology. 1 Credit.
Permission of the instructor or one prior immunology course. Directed readings in immunology under the direction of a member of the graduate faculty. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

MCRO 795. Research Concepts. 2 Credits.
Permission of the instructor. This course will provide multiple opportunities for the student to write parts of hypothesis-based proposals, receive substantial feedback, and to rewrite the text. There will be approximately twelve single-page writing assignments.
Grading status: Letter grade.

MCRO 901. Research in Microbiology or Immunology. 1-15 Credits.
Permission of the department. Designed to introduce the student to research methods and special techniques. Short-term problems are conducted with the advice and guidance of the staff. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

MCRO 993. Master's Research and Thesis. 3 Credits.

MCRO 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF MUSIC (GRAD)

Contact Information

Department of Music
Visit Program Website (http://music.unc.edu)

Allen Anderson, Chair

Jocelyn Neal, Associate Chair for Academic Studies

Mark Katz, Director of Graduate Studies

The department offers the degrees of master of arts (M.A.) in musicology and the doctor of philosophy (Ph.D.) in musicology, construing "musicology" in its broad sense to encompass the interrelated disciplines of music history, music theory, ethnomusicology, and studies of popular culture.

Special Facilities

Central to the departmental resources is the Music Library, which ranks high among the nation's music libraries for its scholarly editions, periodicals, early source materials, iconographic aids, microfilms, folk-music collections, and recordings as well as access to major music research databases and thousands of streamed audio and video recordings. In addition, the Southern Folklife Collection (SFC) is one of the nation's foremost archival resources for the study of American folk music and popular culture. SFC holdings extensively document all forms of southern musical and oral traditions across the entire spectrum of individual and community expressive arts, as well as mainstream media production.

Prerequisites for Degree Programs

The usual prerequisite for admission to graduate work leading to the M.A. and Ph.D. degrees is a bachelor of arts degree with a major in music, or a bachelor of music degree, comparable to those given at this university. All applicants for graduate study in music are required to take the verbal and quantitative aptitude tests of the Graduate Record Examination (GRE). The GRE should be taken early enough for the scores to be submitted with the application for admission, preferably in the summer or fall preceding application for admission. Applicants for the graduate program must also submit with their application samples of their recent writing on musical subjects. The graduate program is an integrated M.A.–Ph.D. program, constructed on the assumption that students will pursue the M.A. and Ph.D. in one continuous sequence: the M.A. is one of the required steps in earning the Ph.D.

Fellowships, Assistantships, and Other Student Aid

In addition to campuswide grants, assistantships and special grants are available to selected graduate students in music. The deadline for all graduate applications is in December; a separate application for aid is not necessary but may be indicated on the general application form for admission to The Graduate School. Selected applicants are nominated for Universitywide awards that range from $16,000 to $22,000. Teaching assistantships may be awarded by the department; these awards average $18,000 and usually include tuition remission for out-of-state students, payment of in-state tuition, and other benefits. For a full listing of the program's financial aid opportunities, please see the Department of Music's *Graduate Handbook*.

For the M.A. degree, students must demonstrate reading proficiency in one language other than English judged suitable to the scheme of study by the written consent of the director of graduate studies. Students may demonstrate proficiency in one of three ways:

1. By achieving a grade of B or better in a UNC–Chapel Hill fourth-semester (204) language course
2. By placing out of the fourth-semester language course through the placement examination given by the appropriate foreign language department
3. By passing the appropriate Foreign Language Proficiency Assessment offered through The Graduate School

For the Ph.D. degree, students must demonstrate proficiency in a second foreign language in one of the three ways described above.

For the M.A. degree, students must also fulfill departmental theory proficiency requirements by examination or by completing a specified undergraduate course in the department with a grade of B or better. Students entering the Ph.D. program with a completed M.A. from another institution must also meet these theory requirements as early in their course of study in the department as possible and, in any event, before they can advance to candidacy for the Ph.D.

MUSC 750, Resources and Methods in Musicology, is required of all students in their first semester. Other courses are drawn from a range of offerings consisting of proseminars (repertory-, method-, or issue-based studies) and seminars (on more precise topics normally requiring significant research on primary sources). Graduate students have the option to include courses from other departments that may be organized as a formal minor (nine hours for the M.A., 15 for the Ph.D.) or as a supporting program. Courses taken outside the department must be approved in advance by the director of graduate studies in music and by the departments concerned as directly relevant to a proposed course of study.

For the M.A. degree, students take courses totaling 30 credit hours and write a thesis that is a revision and expansion of a paper prepared for a graduate seminar taken in the Department of Music. Students write the M.A. thesis in the fourth semester, registering concurrently for MUSC 993, Master's Research and Thesis. All students pursuing a master's degree take a written comprehensive examination; a final oral examination is not given.

At the beginning of each spring semester a written examination is given to satisfy the requirements for the M.A. degree and to qualify students to continue toward the Ph.D. Students already in the department's M.A. program take the examination in the second year. Those who received the M.A. degree at another institution and had the requirements of the M.A. waived must take the examination in the spring of their first year of study.

Following the completion of an additional 12 hours of seminars beyond the 30 hours required for the M.A. degree, students formulate a dissertation topic, to be determined through consultation with the faculty and director of graduate studies in music. By the end of the sixth semester of study (fourth semester for those with the M.A. requirements waived), students must meet the second language requirement and take an oral examination on a proposed dissertation topic. They then register for at least two semesters of MUSC 994, Doctoral Dissertation, and

MUSC 994's corequisite, MUSC 991, Dissertation Colloquium; complete the dissertation; and undergo a second oral examination in its defense.

More detailed explanation of these requirements appears in the Department of Music's *Graduate Handbook.*

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Allen Anderson (4), Music Theory
Mark Evan Bonds (6), Late 18th- and 19th-Century Music, Aesthetics
Tim Carter (3), Late 16th- and 17th-Century Music, Music and Theater, Analysis, American Musical Theater
Annegret Fauser (7), 19th- and 20th-Century Music, France, America, Women's and Gender Studies, Cultural Studies
Mark Katz (11), 20th- and 21st-Century Music, Music Technology, Popular Music, American Music
Stefan Litwin (9), 20th-Century Music, Performance Practices
John Nádas (57), Late Medieval Music, Italian Opera
Jocelyn Neal (5), 20th-Century Theory, Popular Music

Associate Professors

David Garcia (10), Latin American Music, African Diaspora, Popular Music, Critical Theory
Anne MacNeil (8), 16th- and 17th-Century Music, Music and Theater, Gender Studies, Historiography

Adjunct Associate Professor

Philip Vandermeer (15), Traditional and American Popular Music

Assistant Professors

Andrea Bohlman (14), East Central Europe, Sound Studies, Music Technology, Activism
Michael A. Figueroa (18), Middle East, Popular Music, Geography, Violence
Chérie Rivers Ndaliko (25), Music and Media, Conflict and Social/Political Change, African Expressive Culture, Film Scoring Degrees

MUSC

Advanced Undergraduate and Graduate-level Courses

MUSC 471. Instrumental Performance Repertory. 3 Credits.
Advanced study of selected performance issues.
Gen Ed: EE- Performing Arts.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

MUSC 493. Music Internship. 3 Credits.
Permission of the director of undergraduate studies. Internship directly related to the study, practice, or the business of music. Students must complete at least 100 hours and submit a journal and report upon completion of the internship. No more than three credit hours may count toward the requirements of the music major. Excess hours may count as credit hours toward graduation, subject to the overall limit on music hours.
Gen Ed: EE- Performing Arts.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Pass/Fail.

MUSC 676. Digital Media and Live Performance. 3 Credits.
Permission of the instructor for undergraduates. Intended for students from various majors, this course provides a foundation in the history, theory, and practice of developing live, technologically-intensive, multimedia performance works. The course analyzes new media masterworks, addresses techniques of interdisciplinary collaboration, and offers workshops in specific software/technology applications.
Gen Ed: VP.
Grading status: Letter grade
Same as: COMM 676.

MUSC 691H. Senior Honors Thesis in Music I. 3 Credits.
Admission by permission of the honors advisor. Independent study by a student who has been designated a candidate for undergraduate honors in music.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

MUSC 692H. Senior Honors Thesis in Music II. 3 Credits.
Continuance and completion of an honors thesis in music.
Requisites: Prerequisites, MUSC 691H.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

MUSC 750. Resources and Methods of Musicology I. 3 Credits.
Introduction to the field of musicology, including its scope, methodology, and bibliography. Taught in three-week modules, each directed by a different member of the academic faculty. Individual modules will include music history, music theory, ethnomusicology, music aesthetics, and cultural studies.
Grading status: Letter grade.

MUSC 751. Resources and Methods of Musicology II. 3 Credits.
When offered, continuation of MUSC 750.
Grading status: Letter grade.

MUSC 830. Proseminar in Music Theory. 3 Credits.

MUSC 850. Proseminar in Musicology. 3 Credits.

MUSC 870. Proseminar in Ethnomusicology. 3 Credits.

MUSC 890. Special Studies. 3 Credits.
The faculty assists and advises graduate students in work on particular research projects. Available to musicology graduate students only (M.A.T. students taking special studies must register under MUSC 471).
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

MUSC 930. Seminar in Music Theory. 3 Credits.

MUSC 950. Seminar in Musicology. 3 Credits.

MUSC 970. Seminar in Ethnomusicology. 3 Credits.

MUSC 991. Dissertation Colloquium. 1.5 Credit.
Forum for group discussion of on-going dissertation work and professional development.
Requisites: Co-requisite, MUSC 994.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

MUSC 993. Master's Research and Thesis. 3 Credits.

MUSC 994. Doctoral Research and Dissertation. 3 Credits.
Requisites: Co-requisite, MUSC 991.
Repeat rules: May be repeated for credit.

NEUROBIOLOGY CURRICULUM (GRAD)

Contact Information

Neuroscience Curriculum
Visit Program Website (https://www.med.unc.edu/neuroscience/curriculum)

Jay Brenman, Director of Graduate Studies

Sue Modlin, Student Services Manager

The Neuroscience Curriculum at the University of North Carolina at Chapel Hill is a broadly based interdisciplinary graduate training program in the neurosciences. With strong research funding and a long and successful training history, the curriculum ranks among the best programs in the country.

The program has 80 primary faculty members who can serve as dissertation advisors. Research opportunities in the curriculum are supported by the presence of an active neuroscience community at UNC–Chapel Hill. This community includes members of every basic science department in the School of Medicine, members of many clinical departments, as well as several departments in the College of Arts and Sciences. University research and clinical centers with a neuroscience component also contribute to the vibrant and active community that makes neurobiology a major intellectual focus at UNC–Chapel Hill.

The Neuroscience Curriculum enrolls an average of 45 students at different levels of training at any given time; typically, five to ten students are accepted each year depending on available funding. Students in the curriculum are supported during their first and/or second years by a long-standing training grant funded through NINDS, and in subsequent years by either their mentor's research grants or individual fellowships. The average time to graduation is 5.3 years.

Neuroscience is by its very nature an interdisciplinary endeavor, and at UNC–Chapel Hill the neuroscience curriculum provides a broadly structured training curriculum and research environment that spans the range from genetic studies of the nervous system through the complexities of human cognitive function.

Applicants are urged to complete their applications through BBSP (http://bbsp.unc.edu/admissions) by early December.

Courses required for the Ph.D. degree in neuroscience include Molecular and Cellular Neuroscience (NBIO 722A, NBIO 722B, NBIO 722C) and Systems and Translational Neuroscience (NBIO 723A, NBIO 723B, NBIO 723C).

The purpose of the course in Molecular and Cellular Neuroscience is to explore the experimental and theoretical basis for current concepts of nervous system function. The course runs as a series of three blocks in the fall semester and three blocks in the spring semester. This is NOT a survey course in neuroscience. The goals of the course are not so much to inform as to foster an understanding of how we accumulate our knowledge and hypotheses, not to provide a complete textbook picture of the functioning nervous system as we currently know it but to provide the intellectual tools and skills to evaluate current and future hypotheses, not so much to provide answers to questions as to attempt to define the unanswered questions.

Block 1 – Neuroscience Bootcamp: Introduction to Techniques Used in Studying the Nervous System/Electrical Signaling (NBIO 722A) (19 sessions) Because students taking the core course have diverse backgrounds, this block is divided into two sections.

Block 1a – Neuroscience Bootcamp: Introduction to Techniques Used in Studying the Nervous System (9 sessions). The first block serves as an introduction to neuroscience as well as an overview of many of the techniques students will encounter while reading materials and papers for the rest of the course. Examples of topics covered include statistics and hypothesis testing, molecular biology and genetic engineering, confocal microscopy, and functional anatomy of the rodent brain. Fall. Jensen, Brenman, Robinson, Besheer, Stuber.[1]

Block 1b – Electrical Signaling (10 sessions). This block introduces materials related to electrical excitability of neurons. Topics include ion channels, membrane potentials, generation and propagation of action potentials, dendritic excitability, and computational neuroscience as it relates to electrical signaling of neurons. Fall. Smith, Frohlich, Manis[1]

Block 2 – Synaptic Mechanisms (NBIO 722B) (10 sessions). This block focuses on synaptic mechanisms of neurotransmitter release and termination of signaling, as well as intracellular signaling cascades that are regulated by synaptic transmission. Topics include electrophysiological and molecular analysis of neurotransmitter release, short-term plasticity in neurotransmitter release, synaptic plasticity, calcium signaling and regulation of intracellular signaling cascades, and gene expression. Fall. Philpot,[1] Reissner, McElligott, Dudek.

Block 3 – Receptors(NBIO 722C) (10 sessions). This block focuses on neurotransmitter signaling through distinct receptor subclasses. Topics include G-protein coupled receptors and associated signaling, receptor binding theory, ionotropic and metabotropic glutamate and GABA receptors, receptor trafficking and localization. Fall. Kash,[1] Harden, Nicholas, McCorvy, McElligott, Herman.

Block 4 – Development of the Nervous System (NBIO 723A) (11 sessions). This block focuses on molecular mechanisms of neuronal development and their relation to disease. Topics include neurogenesis, neural stem cells, molecular control of axonal guidance and neuronal migration, and cell and synaptic adhesions molecules. Spring. Crews, Maness, Anton,[1] Deshmukh, Gupton, Song, Stein.

Block 5 – Anatomy and Function of Sensory and Motor Systems (NBIO 723B) (17 sessions). This block focuses on the neural circuitry that comprises sensory and motor systems. Topics include organization and function of the retina and visual cortex, mechanosensation, genetically defined circuits for nociception, organization and function of somatosensory cortex, motor cortex, basal ganglia neural circuitry, and cerebellar organization and function. Spring. Zylka,[1] Manis, Fitzpatrick, Stuber, Snider, Weiss, Cheney.

Block 6 – Neurobiology of Disease (NBIO 723C) (12 sessions). This block focuses on the neurobiological underpinnings of disease. For each topic the disease and its impact on society is introduced, and then detailed discussions of the molecular, genetic underpinnings and circuit and behavioral consequences of the disorder are presented. Topics include epilepsy, addiction, fear and anxiety circuitry, schizophrenia, autism, Alzheimer's disease, and Parkinson's disease. This block also includes two classes devoted to human neuroimaging methods such at fMRI and DTI. Spring. Snider,[1] Gilmore, Cohen, Ditcher, Stein, Stuber, Zylka, Piven.

[1] *denotes the head of the block*

Communication of Scientific Results Neurobiology (NBIO 850)
The class teaches the principles for giving effective talks. The course also covers how to introduce speakers, prepare slides, and speak with the public about science. Spencer Smith currently directs the course, with additional faculty members participating in each class. The class is limited to Neuroscience Curriculum students. Students prepare talks, refine them in small groups (three to four students), and then present them in class. The in-class talk is videotaped, and these tapes are reviewed by the students in a session with their peers. After another round of refining their talks with their small group, the students give their polished talks to the department in a formal setting. Writing is critiqued in class, with peers and guest faculty members all offering input. The videotaped reviews and peer critiques help tremendously to teach effective speaking and writing methods in NBIO 850 (a.k.a. PClass); thus, preparing students for the next stage in their scientific careers. Fall. S. Smith.

Neuroanalytics (NBIO 750)
The purpose of this course is to provide both practical and theoretical training in advanced data analysis approaches commonly used in neuroscience research. Over the past 10 years there has been a dramatic shift within the field from relatively simple data analysis approaches such as calculating means and standard errors of grouped data, to now performing complex analysis on higher dimensional datasets to uncover unappreciated features. The material in this course should be immediately useful to any student who is working with modern data collected in neuroscience, from sequencing, electrophysiology, imaging, biochemistry, and behavior. The concepts in the course will be taught through programming in python. While understanding mathematical concepts behind analysis is important, we will largely focus on the big picture and try to illustrate concepts by emphasizing graphical representations of how datasets are treated with these approaches. Throughout the course, we will utilize real-world neuroscience data from a variety of sub-disciplines as examples, and also focus on teaching the implications and limitations of the approaches we cover. At the end of the course, students should have a solid foundation of scientific computing, which will prepare them to independently conduct analysis of their own data or prepare them for more advanced courses. Fall. Stuber.

Neuroscience Seminar Series (NBIO 893)
Diverse but current topics in all aspects of neuroscience. Relates new techniques and current research of notables in the field of neuroscience. Content focuses on presentations by invited, non-UNC faculty, UNC faculty, and mini-series presentations from current neuroscience students. Topics vary from week to week. Students in the curriculum are expected to attend and participate in the neuroscience seminar series, and in particular year 2 and 3 students will be enrolled in NBIO 893 each semester, for which their attendance and participation in seminars and dissertation defenses is tracked and graded. Fall and spring. Stuber.

On the curriculum's Web site, the courses menu lists descriptions of the core courses of the neuroscience curriculum; other selected offerings are shown under the electives menu. Additional elective courses in biochemistry, statistics, molecular biology, physiology, etc., are available to compensate for specific deficiencies or enhance training. It is the current philosophy of the curriculum faculty that students should receive a broad exposure to as many aspects of neuroscience as reasonable, from molecules and genetics through systems, behavior, and human diseases of the nervous system.

The following is a partial list of courses that neuroscience students may consider for their elective requirements.

Microscopy (NBIO 731)
Special Topics in Neuroscience: The Methods in Genetic Engineering (NBIO 890-002)
Special Topics in Neuroscience: Network Neuroscience (NBIO 890-003)
Developmental Neuroscience (NBIO 724)
Neural Information Processing (NBIO 729)
Introductory Statistics for Laboratory Scientists (BBSP 710)
Gene Brain Behavior Interactions in Neurodevelopmental Disorders: Towards an Integration of Perspectives on Disease Mechanisms (NBIO 800)
Clinical Syndromes and Neurodevelopmental Disorders (NBIO 801)
Neurocircuits and Behavior Journal Club (NBIO 733)
Biological Bases of Behavior I (PSYC 701)
Biological Bases of Behavior II (PSYC 702)
Translational Seminar in Cognitive and Clinical Neuroscience (NBIO 727)
Neuropharmacology of Alcohol and Substance Abuse (PHCO 728)
Principles of Statistics Infer (BIOS 600)
Research Ethics (GRAD 721)
Seminar in the Biological Foundations of Psychology (PSYC 708)
Statistical Methods in Psychology (PSYC 830)

Professors

Eva Anton, Neural Circuitry in the Cerebral Cortex
Aysenil Belger, Cortical Circuits Underlying Attention and Executive Function in the Brain
Jay Brenman, AMP-Activated Protein Kinase (AMPK) Plays A Central Role in Energy Balance/Metabolism
Regina Carelli, Brain Reward Processes
Paul Carney, Child Neurology, Epilepsy, Sleep Disorders
Richard Cheney, Fundamental Cell Biology Unconventional Myosins, Filopodia, and Motility
Fulton Crews, Molecular Aspects of Neuronal Vitality and Alcohol
Stephen Crews, Molecular Genetics of Drosophila Nervous System Development
Mohanish Deshmukh, Mechanisms of Apoptosis Regulation in Neurons, Stem Cells, and Cancer Cells
Nikolay Dokholyan, Molecular Etiologies of Human Disease
Serena Dudek (NIEHS), Connections in the Brain (Synapses) Change in Response to Activity
John Gilmore, Human Brain Development, Immune Regulation of Neurodevelopment, Schizophrenia
Klaus Hahn, Understand Cell Behaviors Mediated by Structural Dynamics
Clyde Hodge, Neurobehavioral Pharmacology and Pharmacogenomics of Addiction
Patricia Jensen (NIEHS), Genetic and Environmental Perturbations During Development
Tom Kash, Synaptic Transmission and Plasticity
Weili Lin, Cerebral Ischemia, Human Brain Development, PET, MR
Donald Lysle, Neuroimmunology, Learning Processes
Patricia Maness, Cell Adhesion and Signal Transduction in Developing Neurons
Paul Manis, Cellular Basis of Auditory Information Processing in Brainstem and Cortex
Greg Matera, Genetics and Cell Biology of RNP Assembly and Transport
Glenn Matsushima, Responses of Macrophages During Injury to the CNS
Rick Meeker, Neuroendocrine Regulation, Glutamate Receptors, Mechanisms of AIDS Dementia
A. Leslie Morrow, Molecular Neurobiology of GABAA Receptors and Alcoholism
Mark Peifer, Cell Adhesion, Signal Transduction, and Cytoskeletal Regulation in Development and Disease

Benjamin Philpot, Modification of the Cerebral Cortex by Sensory Experience
Joseph Piven, Pathogenesis of Autism, Genetic Basis, and Neuropsychological and Behavioral Phenotype
Bryan Roth, GPCR Structure and Function, Drug Discovery
Richard J. Samulski, Development of Viral Vectors for Brain-Specific Gene Delivery
William Snider, Developmental Regulation of Neuronal Growth Factors
Patrick Sullivan, Complex Traits in Humans, Psychiatric Genetics, Pharmacogenetics
Todd Thiele, Neurobiology of Alcoholism
Jenny Ting, Use of Murine Models in the Regulation of Inflammatory Genes in Demyelination and Remyelination
Richard Weinberg, Organization of the Postsynaptic Density, Calcium Sources and Actin-Binding Proteins in Spines
Ellen Weiss, Regulation of G-Protein Signaling Pathways, Visual Signal Transduction
Kirk Wilhelmsen, Genetic Mapping of Susceptibility Loci for Complex Neurological Diseases
Mark Zylka, Molecules and Mechanisms for Pain

Associate Professors

Joyce Besheer, Neurobiological Mechanisms Underlying Alcoholism and Addiction
Charlotte Boettiger, Neurobiological Mechanisms of Executive Function Irregularities in Addiction
Gabriel Dichter, Understanding and Improving Treatments for Neurodevelopmental and Neuropsychiatric Disorders
Kelly Giovanello, Exploring the Cognitive and Neural Processes Mediating Memory in Young Adults
Silva Markovic-Plese, Autoimmune Response in MS, New Immunomodulatory Therapies
Donita Robinson, Chemistry and Physiology of the Nucleus Accumbens
Rebecca Knickmeyer-Santelli, Hormonal and Genetic Factors in Neurodevelopmental Disorders
Garret Stuber, Neural Circuit Mechanisms That Regulate the Activity and Function Midbrain Dopamine Neurons

Assistant Professors

Jessica Cohen, Functional Brain Networks Interaction When Confronted with Changing Cognitive Emands
Todd Cohen, Alzheimer's Disease, Frontotemporal Dementia, Amyotrophic Lateral Sclerosis
Eran Dayan, Brain Connectivity, Functional Neuroimaging
Graham Diering, Molecular Mechanisms of Synaptic Plasticity in Sleep
Sylvia Fitting, Structural and Functional Consequences of Behavior/Neurocognition in Disease
Flavio Frohlich, Cortical Networks Generate Physiological, Pathological Activity States
Tim Gershon, Regulation of Neural Progenitor Proliferation in Normal Development and in Pediatric Brain Tumors
Steven Gray, Development and Optimization of AAV Vectors Specifically Tailored Toward CNS Applications
Stephanie Gupton, Coordination and Regulation of Cytoskeletal Dynamics and Membrane Trafficking
Melissa Herman, Inhibitory Microcircuitry Governing Network Function in Motivated Behaviors
Toshi Hige, Mechanisms of Behavioral Responses in Regards to Synaptic Plasticity, Neural Circuit and Behavior
Shawn Hingtgen, Stem Cells, Treatment of Terminal Cancers, Brain Cancer
Hiroyuki Kato, Neural Encoding of Complex Auditory Stimuli
Damaris Lorenzo, Roles of Cytoskeletal Proteins in the Regulation of Cellular Dynamics and Bioenergetics
Zoe Mcelligott, Mechanisms That Underlie Affective Disorders — Anxiety, Depression and Substance Abuse
Ryan Miller, Characterization of the Molecular Genetic Mechanisms Responsible for Heterogeneity Using Tumor Tissues
Kathryn Reissner, Chronic Self-Administration of Cocaine, Neuronastrocyte Communication, Long-Term Drug Seeking
Celia Shiau, Genetic, Cellular and Developmental Systems for Vertebrate Biology
Yen-Yu Ian Shih, Developing and Applying Innovative MRI Technologies in Neurovascular Functions of the Brain
Spencer Smith, Development and Function Circuitry — Using Imaging, Electrophysiology and Behavior
Juan Song, Adult Neurogenesis Function and Regulation
Jason Stein, Genetic Effects on Multiple Aspects of the Human Brain
Lisa Tarantino, Genes That Increase Risk for Psychiatric Disorders
Ann Marion Taylor, Micro-Scale Devices, Microfluidics, Synapse Formation, Synaptic Plasticity, Protein Synthesis

NBIO

Advanced Undergraduate and Graduate-level Courses

NBIO 401. Animal Behavior. 3 Credits.
Ethological, genetic, and physiological variables will be studied in relation to their behavioral effects. Previously offered as PSYC 401.
Requisites: Prerequisites, BIOL 101 and NSCI 175, or combination of BIOL 101, PSYC 101 and NSCI 222; PSYC 270 recommended.
Gen Ed: PL.
Grading status: Letter grade
Same as: NSCI 401.

NBIO 411. Neurobiology Laboratory Apprenticeship. 1-21 Credits.

NBIO 412. Neurobiology Laboratory Apprenticeship. 1-21 Credits.

NBIO 450. Tutorial in Neurobiology. 3 Credits.

Graduate-level Courses

NBIO 701A. Brain & Behavior I. 3 Credits.
Graduate standing required. A survey of psychological and biological approaches to the study of sensory and perceptual information processing, with an emphasis on touch and pain.
Grading status: Letter grade
Same as: PSYC 701.

NBIO 702A. Brain & Behavior II. 3 Credits.
A survey of psychological and biological approaches to the study of basic learning and higher integrative processing.
Grading status: Letter grade
Same as: PSYC 702.

NBIO 703. Advanced Biological Psychology: Central Nervous System. 3 Credits.
Each fall one special topic will be covered in depth (e.g., neural bases of memory storage, homeostasis, and perception). Format includes lectures and seminar meetings with student presentations.
Requisites: Prerequisite, PSYC 402.
Grading status: Letter grade
Same as: PSYC 703.

NBIO 704. Applications of Experimental Psychology to Health Research. 3 Credits.
This course provides a critical analysis of interdisciplinary research within experimental psychology, including such topics as psychopharmacology, psychoneuroimmunology, psychophysiology, and animal models of brain/behavior disorders.
Grading status: Letter grade
Same as: PSYC 704.

NBIO 705. Behavioral Pharmacology. 3 Credits.
Basic principles of pharmacology and behavior analysis are considered in relation to drugs that affect the central nervous system.
Requisites: Prerequisite, PSYC 404; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: PSYC 705, PHCO 705.

NBIO 708. Seminar in the Biological Foundations of Psychology. 3 Credits.
Permission of the instructor. Limited to graduate students in psychology and neurobiology. Lectures and seminar presentations on a wide range of topics in the area of physiological psychology.
Repeat rules: May be repeated for credit.
Grading status: Letter grade
Same as: PSYC 708.

NBIO 710. Advanced Light Microscopy. 3 Credits.
An intensive and comprehensive hands-on laboratory-oriented course in light microscopy for researchers in biology, medicine, and materials science. This course will focus on advanced quantitative fluorescence microscopy techniques used for imaging a range of biological specimens, from whole organisms, to tissues, to cells, and to single molecules. This course emphasizes the quantitative issues that are critical to the proper interpretation of images obtained with light microscopes.
Repeat rules: May be repeated for credit. 6 total credits. 1 total completions.
Grading status: Letter grade
Same as: CBPH 710.

NBIO 721. Directed Studies in Oral Biology. 1 Credit.
Topics include extracellular matrices, immunology, inflammation, neurobiology, and pain management.
Grading status: Letter grade
Same as: OCBM 723.

NBIO 722. Cellular and Molecular Neurobiology. 6 Credits.
Introduces topics including brain cell biology, molecular biology applied to neurons, membrane potentials and imaging methods. The second block introduces such topics as resistance, capacitance, passive membranes, classes of ion channels, potassium and calcium channels, and action potential initiation. Final blocks, focus on neurotransmitter release and signaling through distinct receptor subclasses. Topics include G-protein coupled receptors and associated signaling, receptor binding/ligand theory, ionotropic and metabotropic glutamate and GABA receptors, receptor trafficking and localization. Permission of the department.
Grading status: Letter grade.

NBIO 722A. Cellular and Molecular Neurobiology: Introduction and Electrical Signaling. 2 Credits.
Permission of the department. This course explores the experimental and theoretical function of the nervous system. Typically, the first hour is fundamental material presentation and the second hour may be a presentation led by the students. Topics covered include: cellular diversity in the CNS, gross brain anatomy, human and rodent brain imaging, neuromolecular genetics, behavioral methods, membrane potentials/resistance/capacitance, ion channel structure, electrophysiology and propagation of electrical signals in neurons. Basic undergraduate biology, chemistry, physics and intro calculus is assumed.
Grading status: Letter grade
Same as: BIOC 722A, PHCO 722A.

NBIO 722B. Cellular and Molecular Neurobiology: Postsynaptic Mechanisms-Receptors. 2 Credits.
Permission of the department. Consideration of membrane receptor molecules activated by neurotransmitters in the nervous system with emphasis on ligand binding behavior and molecular and functional properties of different classes of receptors. Course meets for four weeks with six lecture hours per week.
Grading status: Letter grade
Same as: BIOC 722B, PHCO 722B.

NBIO 723. Cellular and Molecular Neurobiology. 6 Credits.
Block one covers neural stem cells, glial development, neural cell death and neurotrophin. The second block introduces the sensory pathways of vision, audition, taste, olfaction, pain, and touch, and the motor pathways of the spinal cord, basal ganglia, cerebellum, and motor cortex. Includes sensory information processing, motor execution, peripheral and central mechanisms of pain. Final block covers CNS imaging, regeneration, and such diseases as Alzheimer's, ALS, Parkinson's, epilepsy, addiction, autism, and schizophrenia. Permission of the department required.
Grading status: Letter grade.

NBIO 724. Developmental Neurobiology. 2 Credits.
A survey of nervous system development emphasizing detailed analysis of selected research topics such as neuronal induction, neural crest development, neuronal differentiation, synapse formation, neurotrophic factors, glial development, and the effects of experience.
Requisites: Prerequisite, NBIO 722; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

NBIO 725. Experimental Neurophysiology. 3 Credits.
Permission of the instructor. Six or more laboratory hours a week.
Grading status: Letter grade.

NBIO 727. Translational Seminar in Cognitive and Clinical Neuroscience. 2 Credits.
Introduces new neuroimaging techniques and their application to the study of neural correlates of cognitive and behavioral impairments in brain disorders. Reviews the theories and research methodologies that investigate how brain functions support and give rise to mental operations such as attention, memory, emotions, social cognition in the healthy brain.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

NBIO 728. Diseases of the Nervous System. 2 Credits.
Explores the basic neurobiology and the clinical aspects of a range of diseases of the nervous system, including ALS, Alzheimer's, autism, schizophrenia, multiple sclerosis, deafness, epilepsy, pain, brain tumors, stroke, Parkinson's, and other neurodegenerative diseases.
Requisites: Prerequisites, NBIO 201, or 722 and 223.
Grading status: Letter grade.

NBIO 729. Sensory Neural Information Processing and Representation. 3 Credits.
Additional required preparation, one year of calculus, familiarity with MATLAB or Python, or permission of the instructor. A discussion/reading seminar covering the fundamentals of nervous system information processing and integration, with examples from sensory systems.
Requisites: Prerequisites, NBIO 722 and 733.
Grading status: Letter grade.

NBIO 731. Microscopy: Principles & Applications. 2 Credits.
This course aims to provide the knowledge one may need to understand the reach of microscopy imaging techniques, to be able to choose the right imaging modality, label the sample, carry out the experiment, analyze data, troubleshoot any pitfalls that may occur, and put together a custom optical setup.
Grading status: Letter grade.

NBIO 732. Biological Concepts. 1.5 Credit.
Overview of structures and biological determinants of conditions and diseases of the oral cavity. Both growth and development and pathophysiology will be introduced in the context of three areas of oral biology: biology of extracellular matrices, host-pathogens interactions, and orofacial neurobiology.
Grading status: Letter grade
Same as: OCBM 732, PHCO 747.

NBIO 733. Neurocircuits and Behavior Journal Club. 1 Credit.
This is journal club course will meet once per week for 90 minutes to discuss new research papers focused on delineating how neurocircuits function to orchestrate various behavioral states. Papers for discussion will be chosen by the instructor and students, and students will rotate in leading discussions.
Requisites: Prerequisites, NBIO 722 and 723.
Grading status: Letter grade.

NBIO 735. Seminar in Chemical Neurobiology. 2 Credits.
Required preparation, two semesters of biochemistry.
Grading status: Letter grade.

NBIO 750. Neuroanalytics: Programming, Statistics, and Machine Learning for the Analysis of Neuroscience Data. 4 Credits.
Practical/theoretical training in advanced data analysis approaches commonly used in neuroscience research. Course useful with modern data collected in Neuroscience, from sequencing, electrophysiology, imaging, biochemistry, and behavior. The concepts will be taught through programming in python, focusing on illustrating concepts by emphasizing graphical representations of how datasets.
Requisites: Prerequisites, NBIO 722 and 723.
Grading status: Letter grade.

NBIO 751. Neurodevelopmental Basis of Brain Disorders. 2 Credits.
The basic principles guiding in the formation and maintenance of human nervous system and how do distinct genetic/ epigenetic disruptions during development cause different types of human neurodevelopmental disorders. The intent of this course is to present latest advances in developmental neuroscience in the context of this theme. Topics covered IMII include neural patterning, neurogenesis, neural cell ate specification, neuronal migration, axon/dendritic growth and connectivity.
Grading status: Letter grade.

NBIO 800. Gene-Brain-Behavior Interactions in Neurodevelopmental Disorders: Perspectives on Disease Mechanisms. 3 Credits.
This seminar examines the topics of genetics, neuroanatomy, physiology, and behavioral development to provide a broad-based and integrated background to understand the etiology and potential mechanism underlying neurodevelopmental disorders.
Grading status: Letter grade.

NBIO 801. Clinical Syndromes and Neurodevelopmental Disorders. 3 Credits.
This seminar will review the epidemiology, pathogenesis, diagnosis and treatment of neurodevelopmental syndromes and disorders. Topics will range from single gene (e.g. fragile X syndrome and tuberous sclerosis) to complex genetic (e.g., autism, schizophrenia), to environmental disorders with varied phenotypes, pathogenetic mechanisms, and treatments.
Grading status: Letter grade.

NBIO 850. Improving Presentation & Communication of Scientific Results. 2 Credits.
Learning modern day techniques and approaches to convey scientific results effectively as a public speaker. Teaching how to implement the key aspects of effective presentation of scientific findings in public settings. Understanding the key components of an effective public talk including scientific content, body language, and voice. Learning how to captivate the target audience and yet still convey data driven scientific findings.
Repeat rules: May be repeated for credit.
Grading status: Letter grade
Same as: CBPH 705.

NBIO 857. Seminar in Comparative Animal Behavior. 1-2 Credits.
Permission of the instructor. Advanced seminar in comparative animal behavior. May be repeated for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade
Same as: BIOL 857.

NBIO 858. Seminar in Comparative Physiology. 1-2 Credits.
Advanced seminar in comparative physiology.
Requisites: Prerequisite, BIOL 451; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade
Same as: BIOL 858.

NBIO 890. Special Topics in Neurobiology. 1-5 Credits.
Special topics in neurobiology. Content will vary from semester to semester.
Grading status: Letter grade.

NBIO 892. Special Topics in Physiology. 1-5 Credits.
Permission of the instructor. Individually arranged in-depth programs of selected topics such as membrane function, transport physiology, renal physiology, etc.
Grading status: Letter grade.

NBIO 893. Neuroscience Seminar Series. 1 Credit.
Diverse but current topics in all aspects of neuroscience. Relates new techniques and current research of notables in the field of neuroscience. Content focuses on presentations by invited, non-UNC faculty, UNC faculty and mini-series presentations from current Neuroscience students. Topics vary from week to week.
Grading status: Letter grade.

NBIO 951. Research in Neurobiology. 3-12 Credits.
Permission of the department. Research in various aspects of neurobiology. Six to 24 hours a week.
Grading status: Letter grade
Same as: BIOL 951, PHCO 951.

NBIO 993. Master's Research and Thesis. 3 Credits.
Course is designed to certify that the students have achieved a high level of knowledge competence in clinical and basic neurosciences, without the rigorous research experience required of a Ph.D.
Repeat rules: May be repeated for credit.

NBIO 994. Doctoral Research and Dissertation. 3 Credits.

SCHOOL OF NURSING (GRAD)

Contact Information

School of Nursing
Visit Program Website (http://nursing.unc.edu)

Nilda Peragallo Montano, Dean

Margaret C. Wilmoth, Executive Dean/Associate Dean for Academic Affairs

Jennifer D'Auria, Assistant Dean, MSN/DNP Division and Programs

Linda Beeber, Assistant Dean, Ph.D. and Postdoctoral Programs

At the graduate level, the School of Nursing offers the master of science in nursing (M.S.N.), the doctor of philosophy in nursing (Ph.D.), and the doctor of nursing practice (D.N.P.).

Master of Science in Nursing

The master of science in nursing (M.S.N.) program prepares nurses for advanced practice nursing focused on direct patient care or as advanced specialists in health care systems

Length of Program

The program of study varies from 36 to 50 credits of academic coursework, including clinical practice, a professional portfolio as a substitute for the oral comprehensive examination, and a master's paper (or in some cases, a thesis). Students may pursue the M.S.N. degree on a full-time or part-time basis.

Master's Program Curriculum

The curriculum consists of four components: the professional core, the research core, the clinical core, and the advanced nursing practice core courses. The professional core courses (NURS 746, NURS 815, NURS 835) and research core courses (NURS 778, NURS 779, NURS 992 or NURS 993) are required of most M.S.N. students. The clinical core courses and advanced clinical courses focus on the student's selected area of specialization and role preparation.

The program options offered reflect a combination of current practice trends as well as available faculty resources. In some advanced practice specialty areas, electives in nursing or other disciplines or courses to support a focus area are required. Each student is admitted to a specific advanced practice area and assigned a faculty advisor to design a program of study that is appropriate to the student's educational and career goals. Upon completion of the program, students are eligible to sit for national certification examinations appropriate to their advanced area of preparation.

The current advanced practice nursing population foci include adult-gerontology primary care nurse practitioner, family nurse practitioner, pediatric nurse practitioner/primary care, and psychiatric-mental health nurse practitioner. The advanced specialties in health care systems include administration, clinical nurse leader, education, informatics, and outcomes management. The M.S.N. program also includes advanced practice courses in adult oncology. Master's students may elect to take these offerings as electives or declare an oncology focus in addition to their primary population of interest. For students in the health care systems informatics option, dual M.S.N./M.S.I.S. and M.S.N./M.S.L.S. degree options are available through the School of Nursing and the School of Information and Library Science. A graduate certificate in nursing education (additional nine credits) is available for students who desire concurrently to develop these skills in teaching and learning along with their advanced nursing preparation.

Doctor of Philosophy in Nursing

The Ph.D. program of the University of North Carolina at Chapel Hill is grounded in our commitment to enhancing the health of individuals, families, and communities; increasing the effectiveness of health care systems; and furthering the translation of research into practice. Graduates of the program are prepared to advance the theoretical and empirical underpinnings of nursing science, engage in interdisciplinary inquiry, and disseminate knowledge. The Ph.D. curriculum reflects the goals of the National Institutes of Health to foster discovery and increase the knowledge base for improving the health of all populations and to reduce health disparities. The program emphasizes the integration of the biological and behavioral sciences; the development and testing of evidence-based, theoretically grounded interventions; and the improvement of health care quality and outcomes. Faculty research addresses three areas of emphasis: enhancing health in vulnerable populations, managing chronic health problems, and strengthening health care systems. Students work closely with internationally renowned faculty from nursing and other disciplines to develop the skills and expertise needed to launch their program of research and pursue a successful career in academic and health care settings.

Length of Ph.D. Program

The Ph.D. program of study is a minimum of 50 credits of academic coursework including a qualifying examination and a dissertation. Students may pursue the Ph.D. degree on a full-time or part-time basis.

Ph.D. Program Curriculum

The Ph.D. curriculum in the School of Nursing includes the following components: coursework, a written qualifying exam, and the dissertation. The program of study for students incorporates both required and menu-driven courses distributed as follows: core knowledge and competencies (16 credits), research methods (13 credits), elective courses in the student's substantive area or courses that support the development of methods or additional research practicum (nine credits), courses from a secondary area of concentration outside the School of Nursing (six credits), and a minimum of six dissertation credits.

Doctor of Nursing Practice

The doctor of nursing practice (D.N.P.) program prepares nurses for the highest level of advanced practice nursing focused on direct patient care (e.g., nurse practitioner) or as advanced specialists in health care systems (e.g., administration, outcomes).

Length of Program

The program credits range from 65–75 credit hours for those with baccalaureate preparation and 37-41 credits hours for those with M.S.N. preparation in certain practice areas. The program includes academic coursework, clinical practice, a qualifying examination, and a practice-focused scholarly project. Students with baccalaureate preparation may purse the D.N.P. degree on a full-time basis, while students with M.S.N. preparation may pursue the D.N.P. degree on a full-time or part-time basis.

D.N.P. Program Curriculum

The D.N.P. program of study builds upon baccalaureate education and expands current M.S.N. education to prepare nurses for clinical

leadership and advanced practice. Graduates of the D.N.P. program receive preparation in such key areas as evidence-based practice, scientific inquiry, organization and systems leadership, finance, health policy, information technology, population health, quality improvement, patient safety, and translational research with the goal of improving patient and population health status and outcomes. The D.N.P. degree provides advanced practice nurses and specialists in health care systems with additional knowledge and skills that better prepare them to address evolving and increasingly complex societal needs.

The D.N.P. program offers two tracks:

a. advanced clinical practice focused on direct patient care (e.g., nurse practitioners)
b. administration and organizational leadership focused on support of clinical practice

The curriculum for the D.N.P. program is based on national accreditation standards. The following nurse practitioner options are available at the D.N.P. level: adult-gerontology nurse practitioner/primary care, family nurse practitioner, pediatric nurse practitioner/primary care, psychiatric-mental health nurse practitioner. The specialty options in health care systems available in the baccalaureate to D.N.P. pathway include administration, informatics, and outcomes management.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Distinguished Professors

Linda Beeber (109)
Diane Berry (130)
Linda R. Cronenwett (105)
Cheryl Woods Giscombe (31)
Kathleen Knafl (48)
Barbara Mark (124)
Mary H. Palmer (6)
Sheila Santacroce (51)
Lixin Song (56)
Suzanne Thoyre (45)

Professors

Ruth Anderson (153)
Diane Berry (130)
Donna Havens (123)
Cheryl Jones (112)
George Knafl (47)
Kathleen Knafl (48)
Mary Lynn (84)
Barbara Mark (124)
Deborah Mayer (28)
Nilda Peragallo Montano (050)
Mary H. Palmer (6)
Gwen Sherwood (33)
Marcia Van Riper (120)
Margaret C. Wilmoth
SeonAe Yeo (108)

Associate Professors

Anna Beeber (14)
Beth Black (42)
Eric Hodges (16)
Coretta Jenerette (39)
Shawn Kneipp (134)
Jennifer Leeman (133)
Sheila Santacroce (51)
Lixin Song (56)
Anita Tesh (158)
Debbie Travers (38)
Jia-Rong Wu (91)

Assistant Professors

Jada Brooks (141)
Saif Khairat (155)
Ashley Leak Bryant (143)
Hudson Santos (154)
Mark Toles (142)
Jessica Williams (168)
Jessica Zegre-Hemsey (144)

Faculty Emeriti

Barbara Bunker
Margaret E. Campbell
Jo Ann Dalton
Molly C. Dougherty
Margery Duffey
Catherine I. Fogel
Cynthia M. Freund
Sandra G. Funk
Barbara Germino
Joanne Harrell
Edward Halloran
Carol C. Hogue
Margaret F. Hudson
Diane Kjervik
Betty H. Landsberger
Patricia Lawrence
Merle Mishel
Margaret Miles
Nancy Milio
Helen M. Murphy
Virginia Neelon
Susan Pierce
Barbara C. Rynerson
Margarete Sandelowski
Anne Skelly
Ingrid Swenson
Eleanor Taggart

NURS

Advanced Undergraduate and Graduate-level Courses

NURS 401. Integrating Principles of Leadership, Quality and Safety, and Informatics into Nursing Practice. 3 Credits.
This course focuses on systems thinking and complexity, development of leadership roles and skills, and interprofessional communication and teamwork. All Carolina Core tenets are examined; however, leadership, quality and safety, and informatics are central foci. Majors Only.
Requisites: Prerequisite, NURS 301.
Grading status: Letter grade.

NURS 402. Foundations of Population Health and Global Health: Carolina Core IV. 2 Credits.
In this course, all Carolina Core tenets are explored; however, there is a focus on population health and global health as essential components of nursing. Students will examine global health challenges as well as policy strategies of promoting health for all. Majors Only.
Requisites: Prerequisites, NURS 301, 302, and 401.
Grading status: Letter grade.

NURS 410. Clinical Nursing Skills and Health Assessment III: On Campus Clinical III. 2 Credits.
The third in a series of four on campus clinical courses with application of advanced clinical nursing skills and comprehensive health assessment to specialized populations. This course emphasizes application of leadership, pediatric and community health concepts. The clinical environment is simulated to provide the application of nursing principles and skills. Majors Only.
Requisites: Prerequisites, NURS 310, 311, and 352; Pre- or corequisite, NURS 430.
Grading status: Letter grade.

NURS 430. Nursing Care of Adults II. 4 Credits.
Centers on management of adults experiencing complex health problems and focuses on application of evidence based practice and skill acquisition needed to care for acutely ill patients through transitions in an illness experience. Clinical experience in acute care settings provide application for clinical reasoning, clinical care, and knowledge integration. Majors Only.
Requisites: Prerequisites, NURS 311, 330, and 352.
Grading status: Letter grade.

NURS 456. Discipline of Nursing II. 2 Credits.
Majors only. This course emphasizes professional development through exploration of a variety of roles and practice environments. Students analyze personal and professional goals and values to develop a framework for nursing practice.
Requisites: Prerequisites, NURS 254 and at least one of the following: NURS 470, 472, 477, or 479.
Repeat rules: May be repeated for credit. 2 total credits. 1 total completions.
Grading status: Letter grade.

NURS 470. Public Health Nursing. 5 Credits.
Majors only. Students apply public health concepts to community practice to improve health and reduce disparities across the lifespan, emphasizing interventions using partnership strategies at individual/family, organizational, and policy levels.
Requisites: Prerequisites, NURS 364 and 371. Co-requisites, NURS 472, 477, or 479.
Grading status: Letter grade.

NURS 472. Nursing Care of Infants, Children, and Their Families. 5 Credits.
Majors only. Nursing care of infants, children, and their families is explored. Knowledge from a variety of disciplines is applied through the nursing process to the direct care of infants and children.
Requisites: Prerequisite, NURS 364.
Grading status: Letter grade.

NURS 477. Psychiatric Mental Health Concepts for Broad Clinical Application in Nursing. 5 Credits.
Majors only. Using theories of psychosocial development, psychopathology, therapeutic communication, and psychotherapy, this course requires students to examine the range and complexities of human emotional suffering and methods of effective intervention.
Requisites: Prerequisites, NURS 253, 361, and 362. Corequisites, NURS 364 and 382.
Grading status: Letter grade.

NURS 479. Maternal/Newborn Nursing. 5 Credits.
Majors only. The course focuses on application of caring and critical thinking skills in providing evidence-based nursing care to childbearing families.
Requisites: Prerequisite, NURS 364.
Grading status: Letter grade.

NURS 481. Mental Health Promotion and Psychiatric Care Across Populations and Settings. 4 Credits.
Using selected theories of human psychosocial development, psychopathology, and psychotherapy, this course requires students to advance their use of therapeutic communication skills, examine the range and complexities of human emotional suffering, and apply methods of effective intervention. Majors Only.
Requisites: Prerequisites, NURS 330 and 351; Pre- or corequisites, NURS 311 and 352.
Grading status: Letter grade.

NURS 482. Reproductive Health and Nursing Care of the Childbearing Family. 4 Credits.
The course emphasizes development of caring and critical thinking skills in providing evidence-based nursing care focused on reproductive health and care of childbearing families. Majors Only.
Requisites: Prerequisites, NURS 301 and 330; Pre- or corequisites, NURS 302, 311, and 352.
Grading status: Letter grade.

NURS 483. Family-Centered Nursing Care from Birth through Adolescence. 4 Credits.
This course emphasizes development of caring and critical thinking skills in providing evidence-based, family centered, culturally responsive nursing care to infants, children, and adolescents throughout the care continuum. Majors Only.
Requisites: Prerequisites, NURS 311, 330, and 352; Corequisite, NURS 410.
Grading status: Letter grade.

NURS 484. Public Health Nursing in Community Settings. 4 Credits.
Students apply evidence-based public health concepts to community practice to improve health and reduce disparities across the life span, emphasizing interventions using partnership strategies at individual, family, organizational, and policy levels. Majors only.
Requisites: Prerequisites, NURS 311, 330, and 352; corequisite, NURS 410.
Grading status: Letter grade.

NURS 487. Practicum in Nursing: Work-Study Experience. 3 Credits.
Certification as Nurse Aide I and II also required as pre- or corequisite. Majors only. This course provides the student an opportunity to participate in a work-study experience in participating health care agencies. Students participate in a reflective experience that integrates classroom and experiential learning.
Requisites: Prerequisites, NURS 254 and 364.
Grading status: Letter grade.

NURS 488. Practicum in Nursing: Health Services Improvement Work Experience. 3 Credits.
Majors only. Certification as a Nurse Aide I and Nurse Aide II are recommended. Practice in health care settings is the course focus. Students participate in a reflective experience that provides the context to integrate classroom and experiential learning into an evolving professional identity.
Requisites: Prerequisites, NURS 254 and 364.
Grading status: Letter grade.

NURS 489. Practicum in Nursing: Global Health Experience. 3 Credits.
Majors only. Certifications as a Nurse Aide I and Nurse Aide II are recommended. Practice in global health care settings is the course focus. Students participate in a reflective experience that provides the context to integrate classroom and experiential learning into an evolving professional identity.
Requisites: Prerequisites, NURS 254, 364, and two of the following: NURS 470, 472, 477, 479, 591.
Grading status: Letter grade.

NURS 491. Improving Nursing Practice: Application of Concepts, Theories, and Research. 3 Credits.
Majors only. This course emphasizes analysis of clinical problems that affect the nursing care of selected populations. Students also apply the nursing process, therapeutic communication skills, and teaching-learning principles in clinical situations.
Grading status: Letter grade.

NURS 492. Conceptual Bases of Professional Nursing Practice. 3 Credits.
Majors only. Selected concepts, theories, and models are synthesized, appraised, and applied as a basis for making judgments and decisions in nursing practice.
Grading status: Letter grade.

NURS 494. Community Health Nursing for the Public's Health. 3-6 Credits.
Majors only. Prepares R.N. students for population-focused practice in community health nursing. Analyses and applications of selected theories; health promotion/protection and disease prevention strategies are emphasized.
Grading status: Letter grade.

NURS 496. Advanced Practicum in Nursing. 1-3 Credits.
Majors only. The focus of this course is the development of knowledge and experience related to research or service learning and its application to the practice of nursing and health care.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

NURS 497. Preparation for Professional Practice. 1 Credit.
Seniors only or permission of the instructor. This course will assist students in preparation for the NCLEX-RN examination through a strategic and systematic individualized plan of study that utilizes the ATI program and other relevant resources. Limited enrollment.
Repeat rules: May be repeated for credit. 3 total credits. 3 total completions.
Grading status: Letter grade.

NURS 510. Management of the Critically Ill. 3 Credits.
This hybrid course, offered in collaboration with UNC Hospitals, focuses on collaborative management of critically ill adult patients. Students will gain advanced skills and demonstrate critical thinking to apply evidence based practice to care for critically ill patients across the continuum of care.
Requisites: Prerequisites, NURS 311 and 352; pre- or corequisite, NURS 430.
Grading status: Letter grade.

NURS 512. Care of Individuals with Cancer and their Families. 3 Credits.
This course focuses on the cancer experience of individuals and families across the lifespan (pediatric to older adults). The cancer control continuum framework will guide content focused discussions on prevention and risk reduction, screening, diagnosis, treatment, survivorship, and end-of-life care.
Requisites: Prerequisites, NURS 301 and 330; pre- or corequisite, NURS 352.
Grading status: Letter grade.

NURS 588. Leadership in Health Care Organizations. 4 Credits.
Majors only. This course explores organizational leadership and management practices and theories. Current social, economic, legal, ethical, and policy issues affecting practice, education, and the profession of nursing are examined.
Requisites: Prerequisites, NURS 364, 371, and 487 or 489, and 472 or 477 or 479. Corequisite, NURS 488.
Grading status: Letter grade.

NURS 591. Nursing Care of Adults with Major Health Problems, II. 8 Credits.
Majors only. This senior-level course focuses on applying critical thinking, clinical decision making, and evidence-based nursing practice to complex health problems of adults. Unique health needs of older adults are addressed.
Requisites: Prerequisites, NURS 364 and 371; co-requisite, NURS 456.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

NURS 600. SHAC: Student Health Action Coalition. 0 Credits.
This course provides service-learning opportunities to apply nursing practice within the context of interprofessional care for vulnerable populations by participating with Student Health Action Coalition (SHAC) activities.
Repeat rules: May be repeated for credit. 0 total credits. 8 total completions.
Grading status: Pass/Fail.

NURS 601. Experiential Learning in Nursing. 0 Credits.
This course provides experiential educational opportunities to apply nursing practice through volunteer participation in select communities. Majors only.
Repeat rules: May be repeated for credit. 0 total credits. 8 total completions.
Grading status: Pass/Fail.

NURS 607I. Interprofessional Team Work and Communication - Key to Patient Safety. 3 Credits.
Majors only. This interprofessional course focuses on understanding roles, teamwork, and communication to improve patient safety within the health care environment. National standards and initiatives will be the foundation of the course. Pass/Fail only.
Grading status: Pass/Fail.

NURS 609. Health Care in the Global Context. 1 Credit.
Majors only or permission of the instructor. A faculty-led experiential learning opportunity focusing on development and knowledge related to research, health care systems, or service learning and its application to nursing and health care.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 8 total credits. 8 total completions.
Grading status: Letter grade.

NURS 611. Supporting the Childbearing Family. 2 Credits.
Application required. An interprofessional, service-learning approach to studying maternity care. Students will receive professional doula training and volunteer as birth doulas within the Volunteer Doula Service Program at North Carolina Women's Hospital.
Grading status: Letter grade.

NURS 613I. Intermediate Spanish for Health Care I. 3 Credits.
This intermediate course is the equivalent of the third semester of college Spanish. Students will hone their listening and speaking skills in class primarily through role-playing activities and class discussion. Activities center on an original film set in a health clinic in rural North Carolina.
Grading status: Letter grade
Same as: PUBH 613, AHSC 613I, SOWO 613I.

NURS 614I. Intermediate Spanish for Health Care II. 3 Credits.
Permission of the instructor. This primarily e-learning course provides public health students with the opportunity to improve their oral communication skills in Spanish at the intermediate level via DVD, Web, and workbook. Instructor-led. Online course.
Requisites: Prerequisite, PUBH 613I.
Grading status: Pass/Fail
Same as: PUBH 614I, AHSC 614I, SOWO 614I.

NURS 615I. Advanced Spanish for Health Care I. 3 Credits.
Required preparation, third semester Spanish or equivalent. This advanced course reviews the grammar of the third and fourth semester of college Spanish. Students hone their listening and speaking skills through role-playing activities and class discussion. Activities center on an original film set in a Latino-run health clinic.
Grading status: Letter grade
Same as: PUBH 615, AHSC 615I, SOWO 615I.

NURS 642. Health Promotion and Illness Prevention in Advanced Nursing Practice. 2 Credits.

NURS 647. Contemporary Issues in the Role of Advanced Practice Nursing. 3 Credits.
Graduate students only. This course examines the evolution, current issues, and roles in advanced practice nursing within the context of contemporary healthcare delivery.
Grading status: Letter grade.

NURS 671. Nursing Inquiry and Evidence-Based Practice for Advanced Scholarship. 3 Credits.
Students anticipating graduate study are introduced to scientific inquiry and principles of evidence-based practice, including theoretical perspectives related to inquiry; ethics; identification of research problems, development of research questions, and appropriate design; data interpretation with emphasis on statistical analysis; and rigorous appraisal of research reports.
Grading status: Letter grade.

NURS 675. Hillman Scholars in Nursing Innovation: Integrative Seminar. 1 Credit.
Admission to the Hillman Scholars Program in Nursing Innovation is required. This seminar will cultivate personal and professional skills essential for students' development and socialization as nurse innovators, leaders, researchers, and scholars. Content is iterative and progressive in depth and scope.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

NURS 680. Experimental Courses. 1-3 Credits.
Pilot test for new courses in the nursing program.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

NURS 685I. Care of the Dying and Bereaved throughout the Life Span. 3 Credits.
Students from a variety of health sciences-related disciplines gain an understanding of issues in working with dying and bereaved individuals of all ages and their families.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

NURS 687. Ethical Issues in Nursing. 2 Credits.
Examination and discussion of major ethical issues arising in the professional practice of nursing in the context of systematic consideration of the nature of ethical choice.
Grading status: Letter grade.

NURS 691H. Honors in Nursing, Part I. 3 Credits.
Permission of the program director. Majors only. Preparation of a two-semester honors project under the direction of department advisors.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

NURS 692H. Honors in Nursing, Part II. 3 Credits.
Permission of the program director. Majors only. Preparation of a two-semester honors project under the direction of department advisors.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

NURS 703I. Alternative Medicine. 3 Credits.

NURS 704. Scientific Writing. 1 Credit.
Focuses on the principles and practice of scientific writing, with emphasis on research proposals, theses, research reports, dissertations, and articles for publication.
Grading status: Letter grade.

NURS 710. Developmental Physiology and Pathophysiology. 3 Credits.
This course explores developmental changes in morphological processes and normal and pathologic physiology in humans from conception through adolescence. Physiological differences between infants and children and adults are emphasized.
Grading status: Letter grade.

NURS 715. Pathophysiology for Advanced Nursing Practice. 3 Credits.
This course examines the physiological and pathophysiological responses to injury-effects on cell function, host defense responses, maintenance of vital functions, and neuro-endocrine-immune responses to stress across the lifespan.
Grading status: Letter grade.

NURS 720. Pharmacotherapeutics in Advanced Nursing Practice. 3-4 Credits.
Examines principles of pharmacotherapeutic decision making in advanced nursing practice with application to clinical management of common health problems specific to all age groups, encompassing a life-span approach.
Requisites: Prerequisite, NURS 710 or 715.
Grading status: Letter grade.

NURS 721. Pediatric Pharmacology. 1 Credit.
The course will examine the principles of pharmacotherapeutic decision making in advanced nursing practice, with application to the clinical management of common health problems specific to pediatrics.
Requisites: Prerequisites, NURS 715 and 720; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NURS 722. Psychopharmacology in Psychiatric-Mental Health Advanced Practice Nursing. 2 Credits.
Examines the principles of psychopharmacology and neurobiology for safe and effective psychotherapeutic management of individuals with psychiatric and mental health problems across the lifespan.
Requisites: Prerequisites, NURS 715, 726, and 727; co-requisite, NURS 720; permission of the instructor for students lacking the pre- and corequisites.
Grading status: Letter grade.

NURS 725. Advanced Health Assessment and Diagnostic Reasoning in Pediatric Nursing. 4 Credits.
This course is designed to prepare the advanced practice nurse to comprehensively assess pediatric clients using a diagnostic reasoning process.
Requisites: Pre- or corequisite, NURS 710.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 8 total credits. 2 total completions.
Grading status: Letter grade.

NURS 726. Advanced Health Assessment and Diagnostic Reasoning in Primary Care. 4 Credits.
This course examines the process of diagnostic reasoning as a framework to synthesize comprehensive assessment of patients throughout the lifespan.
Requisites: Pre- or corequisite, NURS 715.
Grading status: Letter grade.

NURS 727. Advanced Diagnostic Process in Psychiatric-Mental Health Nursing. 4 Credits.
This course introduces students to the role of the advanced practice psychiatric-mental health nurse. Models for assessment, intervention, and evaluation are explored and tested clinically.
Requisites: Pre- or corequisites, NURS 715 and 726.
Grading status: Letter grade.

NURS 730. Foundations in Clinical Informatics: Data, Information, and Knowledge. 3 Credits.
Required preparation, graduate nursing program admission or instructor permission. This foundational course provides an overview of computer and information science concepts as applied to health care.
Grading status: Letter grade.

NURS 746. Health Care Policy in the United States: Development, Impacts, and Implications for Nurses. 3 Credits.
This course examines health care policy development, impacts, and prospects for change. Content enables nurses to draw implications for nursing practice and advocacy for improving systems.
Grading status: Letter grade.

NURS 776. Research for Advanced Clinical Practice. 3 Credits.
Graduate standing and successful completion of an undergraduate statistics course required. This course explores approaches to research problems in advanced practice nursing. Theories, methods, designs, measurement, ethical conduct, and skills in critical appraisal are emphasized.
Grading status: Letter grade.

NURS 777. Intermediate Statistical Applications in Health Care. 3 Credits.
Graduate standing required. This course provides an introduction to probability, statistical concepts, and analytical techniques useful in health care research and for interpreting the literature.
Grading status: Letter grade.

NURS 778. Interpreting Research Reports. 3 Credits.
For Nursing students admitted to the Graduate School. Focuses on approaches for critical reading of research reports to evaluate the evidence base for practice.
Grading status: Letter grade.

NURS 779. Synthesis and Translation of Evidence. 3 Credits.
Focuses on the translation of research evidence to support improved models of care delivery.
Requisites: Prerequisite, NURS 778; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

NURS 780I. Multidisciplinary Perspectives on Managing Diabetes Mellitus. 2 Credits.
This course examines the current issues involved in managing diabetes mellitus in persons over their life span. Contributions of the multidisciplinary team are an important theme throughout this course.
Grading status: Letter grade.

NURS 781I. Genomics and Society. 3 Credits.
This multidisciplinary course offers students the opportunity to gain a basic understanding of human genetics and explore the ethical, legal, and social implications of recent advances in genetics.
Grading status: Letter grade.

NURS 786. Advanced Concepts in the Clinical Care of Older Adults. 2 Credits.
Graduate students only. Focuses on advanced concepts for nursing management of older adults and their families with an emphasis on interdisciplinary care.
Grading status: Letter grade.

NURS 787. Cancer Care for Advanced Practice Providers. 1 Credit.
This course for MSN, DNP, and PhD students provides an understanding of management of adults across the cancer continuum (prevention, early detection, treatment, and beyond [survivorship, palliative care, end-of-life care]) for advanced practice providers regardless of practice setting.
Grading status: Letter grade.

NURS 788. Advanced Pharmacology in Oncology. 1 Credit.
Focuses on the pharmacologic management of drugs used for therapeutic management and supportive care in adult oncology.
Requisites: Prerequisites, NURS 715 and 720; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NURS 789. Advanced Concepts in Oncology Nursing. 2 Credits.
Admission to Adult-Gerontology Nurse Practitioner program or permission of the instructor required. This course focuses on an evidence-based approach for the advanced practice nurse, incorporating pathophysiology; prevention/detection; medical treatment; nursing management; and socioeconomic, ethical, and legal issues related to adult cancer care.
Grading status: Letter grade.

NURS 790I. Population Health Interprofessional Management in a Changing Health Care System. 3 Credits.
Admission to the School of Nursing graduate program or graduate students in any of the Health Affairs Schools with permission of instructor. This interprofessional education course focuses on preparing healthcare professionals with the foundational skills needed to work in teams to effectively collaborate and coordinate care in population health.
Grading status: Letter grade
Same as: SOWO 790.

NURS 799. Special Problems. 1-3 Credits.

NURS 810. Primary Care Management of Adults. 5 Credits.
Focuses on the management of illnesses common to young, middle, and older adults in ambulatory care.
Requisites: Prerequisites, NURS 715 and 726; pre- or co-requisite, NURS 720.
Grading status: Letter grade.

NURS 811. Selected Issues in Adult Health. 5 Credits.
Provides the opportunity for an in-depth examination of management strategies with selected health problems in adults. Also examines issues inherent in the management of women and elderly populations.
Requisites: Prerequisites, NURS 715, 720, 726, and 810; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NURS 812. Management of Complex Health Problems in Adults. 6 Credits.
This capstone course focuses on the management of complex health problems in adult populations for the adult nurse practitioner.
Requisites: Prerequisites, NURS 715, 720, 726, 810, and 811.
Grading status: Letter grade.

NURS 815. Advanced Practice Nursing Role. 1 Credit.
Examines current advanced practice nursing roles issues, within the context of contemporary healthcare delivery, legal, and sociopolitical systems.
Requisites: Prerequisites, NURS 810, 840, or 860; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NURS 819. Practicum in Primary Care Management of Adults. 2 Credits.
A precepted practicum in community-based ambulatory care settings that provides experiences in continuity of care in the delivery of personal health services to adult individuals and their families.
Requisites: Prerequisites, NURS 715, 720, 726, and 810.
Grading status: Letter grade.

NURS 820. Clinical Practicum in Advanced Oncology Nursing. 2-4 Credits.
Focuses on the evidence-based management of common acute, episodic, and chronic health problems in adult cancer patients for the oncology nurse practitioner.
Requisites: Prerequisites, NURS 688 and 699; Co-requisite, NURS 821; Permission of the instructor for students lacking the pre- and co-requisites.
Grading status: Letter grade.

NURS 821. Seminar in Advanced Oncology Nursing. 0.5 Credits.
Focuses on evidence-based nursing and medical management issues relevant to the care of patients and their families across the cancer continuum and practice settings.
Requisites: Prerequisites, NURS 788 and 789; co-requisite, NURS 820; permission of instructor for students lacking the co-requisite.
Grading status: Letter grade.

NURS 823. Advanced Practicum in Primary Care Management of Adults. 2 Credits.
This clinical capstone course prepares Adult Gerontology primary care nurse practitioner students to synthesize and apply concepts and knowledge critical for professional primary care advanced practice nursing with individuals, families and communities. Students' independent practice skills are refined in precepted clinical experiences.
Requisites: Prerequisites, NURS 715, 720, 726, 810, 811, and 812.
Grading status: Letter grade.

NURS 825. Sexual and Reproductive Health. 4 Credits.
Uses a life span approach to examine principles of primary care management of childbearing couples and sexual reproductive health in women and men. Application is in community-based settings.
Requisites: Prerequisites, NURS 715, 720, 726, and 810; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NURS 826. Introduction to Population Health and Community-Based Practice. 2 Credits.
This course introduces fundamental concepts and models of population-oriented nursing practice and the central issues affecting that practice. Focuses on health disparities and underserved populations.
Grading status: Letter grade.

NURS 827. Child Health Issues in Primary Care. 4 Credits.
Examines the principles of assessment, management, evaluation, and continuing care of children in primary care settings. Developmentally-appropriate, family-centered approaches and management of common medical problems are addressed.
Requisites: Prerequisites, NURS 715, 720, 726, and 810.
Grading status: Letter grade.

NURS 828. Advanced Clinical Practicum in Primary Care of Families. 4 Credits.
This course is the capstone practicum for family nurse practitioner students. It emphasizes the comprehensive clinical management of primary health care needs in the context of the individual, the family, and/or the community.
Requisites: Prerequisites, NURS 715, 720, 726, 810, 825, and 827.
Grading status: Letter grade.

NURS 833. Specialty Care in the Health of Women. 4 Credits.
Focuses on the primary care of women with complex gynecological problems, reproductive complications, and socially derived health care problems. Emphasis is placed on assessment, diagnosis, management, and clinical decision making.
Requisites: Prerequisites, NURS 715, 720, 726, 810, and 825; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NURS 835. Population Health and Epidemiology. 3 Credits.
Admission to Nursing graduate program. Focuses on epidemiologic approaches for studying the impact of social, economic, and cultural inequalities on health and illness patterns at population and clinical levels.
Grading status: Letter grade.

NURS 838. Health Care of Women Practicum. 1-5 Credits.
The women's health care advanced practicum focuses on the synthesis and clinical management of primary health care and specialty health care problems of women.
Requisites: Prerequisites, NURS 715, 726, 810, 825, and 833.
Grading status: Letter grade.

NURS 840. Primary Care of Children. 5 Credits.
This course focuses on advanced practice nursing management of common clinical symptomatology and problems in pediatric primary care.
Requisites: Prerequisites, NURS 710 and NURS 725; Pre- or co-requisite, NURS 720; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NURS 841. Advanced Concepts in Family-Centered Health Care of Children and Adolescents. 4 Credits.
Focuses on advanced concepts in family-centered health care of selected child and adolescent health problems. Students function in an advanced practice role working with children, adolescents, and their families in primary care, acute, and/or chronic illness settings.
Requisites: Prerequisites, NURS 710, 725, and 840; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NURS 842. Management of Complex Conditions in Advanced Practice Pediatric Nursing. 4 Credits.
permission of the instructor for students lacking the pre- or corequisites. This course prepares the advanced practice nurse to design, implement, and evaluate a coordinated system of interventions that aim to promote optimal health and maximize outcomes for infants, children, and adolescents with complex conditions.
Requisites: Pre- or corequisites, NURS 710, 720, and 840;
Grading status: Letter grade.

NURS 849. Clinical Practicum in Advanced Practice Pediatric Nursing. 1-5 Credits.
Supervised practicum in an advanced practice role in a selected health care setting that provides primary care and/or specialized health care to infants, children, or adolescents.
Requisites: Prerequisites, NURS 710 and 725; Co-requisites, NURS 720 and 840; Permission of the instructor for students lacking the pre- or co-requisites.
Grading status: Letter grade.

NURS 850. Advanced Clinical Practicum in Primary Care of Children. 2-3 Credits.
This course is the capstone practicum for pediatric nurse practitioner students. It emphasizes the comprehensive clinical management of primary health care needs of children in the context of the family.
Requisites: Prerequisites, NURS 710, 720, 725, 840, 841, and 842.
Grading status: Letter grade.

NURS 860. Psychiatric Nursing Interventions with Individuals. 5 Credits.
Focuses on theories, techniques, and research related to providing individual psychotherapy. Contextual factors affecting the delivery of psychiatric-mental health nursing services are analyzed.
Requisites: Prerequisites, NURS 715, 726 and 727; Pre- or co-requisites, NURS 720, 722.
Grading status: Letter grade.

NURS 863. Psychiatric-Mental Health Nursing for Underserved Populations. 3 Credits.
Utilizing epidemiology, psychoeducation, case management, and health policy, students examine the scope of mental health problems and services for underserved populations.
Requisites: Prerequisites, NURS 727 and 860.
Grading status: Letter grade.

NURS 864. Psychiatric-Mental Nursing Interventions: Families and Groups. 4 Credits.
Students will analyze theories, techniques, and research relevant to therapy with groups and families experiencing mental health problems.
Requisites: Prerequisites, NURS 715, 720, 722, 726, 727, 860 and 865; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NURS 865. Psychiactric-Mental Health Nursing Interventions with Children. 2 Credits.
Students will analyze theories, techniques, and research relevant to therapeutic interventions with children experiencing mental health problems.
Requisites: Prerequisites, NURS 715, 720, 722, 726, 727, and 860; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NURS 868. Management of Complex Psychiatric-Mental Health Problems Across the Lifespan. 6 Credits.
This courses focuses on the management of complex psychiatric-mental health problems across the lifespan for the psychiatric-mental health nurse practitioner.
Requisites: Prerequisites, NURS 715, 720, 722, 726, 727, 860, 864, and 865; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NURS 869. Practicum in Psychiatric Mental Health Care for Advanced Practice Nurses. 1-3 Credits.
This is the final advanced clinical course for students to apply knowledge and skills in selected domains of the advanced practice of psychiatric-mental health nursing. Supervision, peer evaluation, seminar, and independent readings will enhance the experience.
Requisites: Prerequisites, NURS 727, 860, 863 and 864; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NURS 870. Health Care Informatics. 3 Credits.
Focuses on developing an understanding of the concepts relevant to health care informatics and the use of computerized information systems, as well as the use of computer applications to support clinical and administrative decision making.
Grading status: Letter grade.

NURS 871. Leadership and Advanced Practice Roles in Health Care Organizations. 3 Credits.
This course examines health care and nursing practice organizations, and the influence of the external and internal environment on these organizations. Roles and functions of nurses at different levels and in different types of health care settings are explored.
Grading status: Letter grade.

NURS 872. Developing and Managing Human Resources in Health Systems. 3 Credits.
Explores the knowledge and skills required for effective human resource management. Managerial behaviors that promote and maintain a professional nursing practice environment are emphasized.
Grading status: Letter grade.

NURS 873. Financing for Valued-Based Care. 3 Credits.
Admission to graduate program. This course examines theoretical underpinnings and financial management concepts that pertain to costs, cost analysis, budgeting, variance analysis, staffing, productivity, and forecasting to prepare nurse leaders for decision-making in complex health care organizations.
Grading status: Letter grade.

NURS 874. Improving Quality, Safety, and Outcomes in Healthcare Systems. 3 Credits.
Majors only. Explores theories and methods for improving the quality, safety, and outcomes of care and patient and organizational levels, with emphasis on the quality and patient safety movement, improvement science, and evidence based practice.
Grading status: Letter grade.

NURS 875. Principles of Teaching Applied to Nursing. 3 Credits.
Provides students who have had minimal or no teaching experience with the educational principles necessary to teach in nursing programs or health care settings.
Grading status: Letter grade.

NURS 876. Innovations in Nursing and Health Care Curricula. 3 Credits.
This online course examines foundations of contemporary nursing and health care education, including academic, staff development, patient education programs, and lifelong learning.
Grading status: Letter grade.

NURS 878. Health Care Residency and Integrative Seminar. 5-6 Credits.
Required preparation, all required courses for the HCS specialty or concurrent enrollment in final HCS coursework. Course provides students an opportunity to develop, implement, and evaluate advanced practice and leadership strategies in a Health Care Systems area of focus.
Grading status: Letter grade.

NURS 879. User-Centered Analysis and Design of Health Care Information Systems and Interfaces. 3 Credits.
This course combines user-centered design theories, the science of systems analysis and design, and usability in health care, supported by real-world exercises in a simulated environment.
Requisites: Prerequisites, NURS 730 and 870; permission of instructor for students lacking the prerequisites.
Grading status: Letter grade.

NURS 880. Advanced Assessment for Nursing Leadership. 4 Credits.
This course focuses on advanced assessment for identifying evidence-based interventions across a variety of healthcare settings. Emphasis is on the application of tools to implement changes related to care delivery and coordination at the client, unit, and organizational levels.
Grading status: Letter grade.

NURS 881. Evidence Based Care for Clinical Nurse Leaders. 6 Credits.
Advanced clinical nurse leadership course emphasizing collaboration with key stakeholders to implement evidence-based interventions and improve care delivery in clinical systems.
Requisites: Pre- or corequisites, NURS 715 and 880.
Grading status: Letter grade.

NURS 882. Clinical Teaching. 3 Credits.
Graduate standing required. Prepares nurses for teaching in clinical settings. Focuses on how to develop a clinical course, select clinical settings, work with staff, plan teaching methods and learner activities, and evaluate outcomes.
Grading status: Letter grade.

NURS 899. Special Topics in Nursing. 1-6 Credits.
Special topics with an authority in the field.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

NURS 901. Clinical Scholars in Nursing Innovation I. 6 Credits.
The first of two courses designed to enhance scholars' understanding of nursing practice and care delivery within clinical microsystems. Students engage in individualized, precepted clinical experiences and guided scholarly reflection.
Requisites: Prerequisite, students must be Hillman Scholars; licensed as an RN in NC and enrolled full-time in the PhD program.
Grading status: Letter grade.

NURS 902. Clinical Scholars in Nursing Innovation II. 6 Credits.
Second sequential course for doctoral students designed to extend scholars' understanding of nursing practice and develop identity as a nurse scientist. Scholars engage in individualized, precepted clinical experiences and guided scholarly reflection.
Requisites: Prerequisite, NURS 901.
Grading status: Letter grade.

NURS 912. Theoretical Foundations of Scientific Inquiry. 3 Credits.
Critically analyzes historical and current views of knowledge development and scientific development. It examines the underlying ontological and epistemological assumptions of these views and how they influence scientific inquiry. Students will learn to critically evaluate extant theories, concepts, and models for use in research, including their testability and utility.
Grading status: Letter grade.

NURS 915. Health Organization Policy. 3 Credits.
Examines interrelated changes in nursing, ethical and legal expectations, and the organization of health care and health policy. Ways that nurse leaders in health care organizations adapt to and challenge public policies throughout the policymaking process and consequences for organizations and for health, practice, research, and education are explored.
Grading status: Letter grade.

NURS 920. Theoretical Foundations of Advanced Practice. 3 Credits.
Admission to Nursing graduate program.This course provides a foundation philosophy of science, examines the elements and utility of theory, and explores key theories of practice, including theories from nursing and other disciplines.
Grading status: Letter grade.

NURS 928. Organizational Theories. 3 Credits.
Examines the major theoretical paradigms, perspectives, and issues in organization theory, particularly as applied to organizations providing health care services.
Grading status: Letter grade.

NURS 930. Children at Risk: Prenatal Period Through Emerging Young Adulthood. 3 Credits.
This course will apply ecological and developmental perspectives to research with children at risk for conditions threatening life/quality of life and resilience under risk. Emphasis is on critically evaluating conceptual models, designs, and methods, and responsible conduct of research aiming to understand, prevent, or manage risk.
Grading status: Letter grade.

NURS 932. Families and Health. 3 Credits.
Explores theoretical, methodological, and ethical issues related to research in families and health across the life span. Content includes family research related to health promotion, risk reduction, vulnerability, and health risk, and the family in the context of acute and chronic illness. Cultural, ethnic, and socioeconomic issues are included.
Grading status: Letter grade.

NURS 933. Health Care Quality and Patient Outcomes: Conceptual and Empirical Approaches. 3 Credits.
Examines literature on quality of care -- effectiveness, safety, efficiency, equity, timeliness, and patient-centeredness. Critically evaluates conceptual frameworks, research designs, sources of data, analytic approaches, and implications for health care policy.
Requisites: Prerequisite, NURS 976; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

NURS 941. Practice Inquiry I. 2 Credits.
permission of the instructor for students lacking the pre- or corequisite. Course and project hours focused on identifying an evidence-based clinical practice question and resources necessary to support the DNP Project.
Requisites: Pre- or corequisite, NURS 778;
Grading status: Letter grade.

NURS 942. Practice Inquiry II. 2 Credits.
Pre- or Permission of the instructor for students lacking the prerequisites or co-requisites. Course and project hours focused on methodologies for planning and implementing the DNP Project.
Requisites: co-requisites, NURS 778, 779, 941;
Grading status: Letter grade.

NURS 943. Practice Inquiry III. 2 Credits.
permission of the instructor for students lacking the pre- or corequisites. Course and project hours focused on issues related to the implementation, evaluation, and dissemination findings of the DNP Project.
Requisites: Pre- or corequisites, NURS 778, 779, 941, 942, and 994;
Grading status: Letter grade.

NURS 950. Analysis of the Academic Role in Nursing Education. 3 Credits.
Knowledge, theories, and skills necessary for transition into an academic teaching role in university schools of nursing. Particular emphasis on the teaching-learning process as used in higher education.
Grading status: Letter grade.

NURS 951. Mentored Teaching Practicum. 1-3 Credits.
Admission to the PhD program in nursing and successful completion of qualifying examination. Permission of the instructor for students lacking the prerequisites. Application of educational theory and methods in teaching activities with mentor. Provides opportunities to analyze course design, implement objectives, evaluate student competencies, and practice in teaching methods.
Requisites: Prerequisites, NURS 875 or NURS 950.
Repeat rules: May be repeated for credit. 3 total credits. 3 total completions.
Grading status: Letter grade.

NURS 953. Ethics and Law in Health Care and Research. 3 Credits.
Focuses on the analysis of contemporary ethical/legal dilemmas in health care and research. Examines nurses' ethical/legal responsibilities, law and the impact of judicial precedent upon clinical practice and research, the interface of law and ethics, and comparative theories/models of ethical reasoning and decision-making.
Grading status: Letter grade.

NURS 957. From Theory to Intervention and Implementation. 3 Credits.
Required preparation, NURS 912 or graduate level theory course. In-depth exploration of selected programmatic research in nursing and related fields on prevention and management of chronic conditions in order to generate and evaluate treatment theory and intervention protocol.
Grading status: Letter grade.

NURS 958. Designing Intervention Studies. 3 Credits.
Examines methodological, ethical, and practical issues in the design and implementation of theory-based intervention studies.
Requisites: Prerequisite, NURS 957; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

NURS 959. Research Grant Writing. 3 Credits.
Course is designed to assist doctoral students and post-docs with preparation of Individual National Research Service Award (NRSA) or other research grant application. All steps in grant writing process will be addressed. Student should have solidified research idea prior to course. Mentor must agree to work with student throughout course.
Grading status: Letter grade.

NURS 960. Proseminar in Nursing. 1-3 Credits.
Proseminars are offered for one, two, or three credits. Topics differ each semester.
Grading status: Letter grade.

NURS 962. Conducting Systematic Reviews and Writing Specific Aims. 4 Credits.
Designed to develop students' skills in conducting systematic reviews of the literature in their area of research focus. In addition, students will gain proficiency in developing aims for a research study and in using findings from their systematic literature reviews to further develop and refine those aims.
Grading status: Letter grade.

NURS 963. Writing for Publication. 3 Credits.
In this course, students apply principles and practices of writing to the preparation of manuscripts for publication.
Grading status: Letter grade.

NURS 965. Issues in Gerontological and Geriatric Research. 3 Credits.
This course is designed to enhance the student's knowledge of relevant issues researchers face when planning, designing, and implementing research with an older adult population.
Grading status: Letter grade.

NURS 966. Implementing Health System Innovations in Complex Organizations. 4 Credits.
permission of the instructor for students lacking the pre- or corequisites. Explores the application of implementation science and other relevant theory, focusing on the role of the executive nurse in integrating innovations into complex systems.
Requisites: Pre- or corequisite, NURS 779, 871, 873, 874;
Grading status: Letter grade.

NURS 967. Financing and Economics of Health Care Systems. 3 Credits.
permission of the instructor for students lacking the pre- or corequisites. Examines economic perspectives addressing health financing and policy questions, including: incentives and tradeoffs in healthcare decisions; healthcare production and provision; health insurance markets; and the role of government.
Requisites: Pre- or corequisite, NURS 779, 915 or 746, 871, 873, 874;
Grading status: Letter grade.

NURS 968. Writing the Pre-/Post-Doctoral Training Plan for a Research Intensive Career. 2 Credits.
Explore components of and rationale for a pre-/post-doctoral training plan and its relevance for planning a research intensive career. Students will write a personalized training plan following grant criteria.
Requisites: Prerequisite, Graduate status or permission of the instructor; NURS 959 or equivalent (including postdoctoral status); permission of primary mentor.
Grading status: Letter grade.

NURS 969. Quantitative Data Analysis: Analyzing Health Care Systems. 3 Credits.
Focuses on applying statistical concepts to the analysis of real world health care administration problems or issues, including the evaluation and presentation of the results.
Requisites: Prerequisite, NURS 874, 778, or 779; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

NURS 972. Statistical Models for Health Research. 4 Credits.
This course will examine principles of bivariate and multiple regression and correlation, as well as univariate ANOVA, multiple ANOVA, ANCOVA, and repeated measures ANOVA. Emphasis is on application of these techniques in the analysis of nursing and health-related data.
Requisites: Prerequisite, NURS 671 or 777; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

NURS 976. Issues in Sampling and Design. 3 Credits.
Systematic and critical analysis of quantitative research designs including experimental, quasi-experimental, longitudinal, comparative, correlational, and descriptive. Examines sampling frameworks, types of samples, sampling errors and biases, and advantages and disadvantages of these designs for the study of nursing and healthcare issues.
Grading status: Letter grade.

NURS 977. Qualitative Approaches to Knowledge Development. 3 Credits.
Examines the philosophical orientation and techniques of qualitative methodologies including qualitative description, grounded theory, ethnography, and narrative. Design issues related to sampling, data collection, data analysis, and data re-presentation, validation, rigor, and ethical concerns are considered.
Grading status: Letter grade.

NURS 978. Principles of Measurement. 3 Credits.
Required preparation, graduate level statistics course in the previous three years. Permission of the instructor for students lacking the required preparation. Examination of measurement and techniques for assessing validity, reliability, and structure of data collection instruments. Instrument construction and procedures for critical evaluation of instruments are included.
Grading status: Letter grade.

NURS 979. Qualitative Analysis. 3 Credits.
Required preparation, doctoral level qualitative methods course or NURS 977. Emphasizes the work of analysis and interpretation. Students apply relevant qualitative techniques to their own data.
Grading status: Letter grade.

NURS 980. Observational Methods. 3 Credits.
Explores quantitative observational research techniques. Strategies for developing coding systems, determining reliability and validity, and analyzing data are included.
Grading status: Letter grade.

NURS 981. Longitudinal Methods and Analysis. 3 Credits.
Examines longitudinal research methods, including conceptualization, design, and analysis. Assumptions and limitations of longitudinal statistics, relationship between design and analyses, and strategies to maintain scientific integrity are covered.
Requisites: Prerequisite, NURS 972; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

NURS 985. Research Seminar and Practicum: Guided Individual Research Experience. 1-6 Credits.
Directs students to develop research skills related to the dissertation and to their future research.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

NURS 986. Elective Doctor of Nursing Practice Residency. 1-3 Credits.
This course focuses on the synthesis of knowledge related to advanced practice, practice leadership, and practice inquiry and is composed of a residency related to the DNP project.
Requisites: Prerequisites, NURS 941, 942 or 943.
Repeat rules: May be repeated for credit. 6 total credits. 3 total completions.
Grading status: Letter grade.

NURS 992. Master's (Non-Thesis). 3 Credits.

NURS 993. Master's Research and Thesis. 3 Credits.

NURS 994. PhD Dissertation/DNP Project. 3 Credits.

DEPARTMENT OF NUTRITION (GRAD)

Contact Information

Department of Nutrition
Visit Program Website (http://www.sph.unc.edu/nutr)

Elizabeth J. Mayer-Davis, Chair

Nutrition is a department within the Gillings School of Global Public Health.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Linda S. Adair (34), Maternal and Child Nutrition, Nutrition and Global Health, Child Growth, Long-Term Effects of Early Childhood Nutritional Exposures

Alice S. Ammerman (41), Community-Based Nutrition and Physical Activity Intervention and Policy/Environmental Change for Chronic Disease Prevention (Obesity, Cancer, Heart Disease, Diabetes), Addressing Health Disparities, Healthy Food Access through Local, Sustainable Food Systems

Melinda Beck (70), Antioxidant Nutrition and Infectious Disease, Obesity and Infectious Disease, Nutritional Status and Immune Function

Margaret Bentley (67), Nutritional Anthropology, Infant and Young Child Feeding, Growth, and Development, HIV/AIDS and Breastfeeding, Pediatric Obesity

Cynthia M. Bulik (98), Twin and Molecular Genetic Studies of Eating Disorders and Weight Regulation, Information Technology-Aided Approaches to Treatment of Eating Disorders and Overweight, Eating Disorders and Reproduction, Parenting Assistance for Women with Eating Disorders, Eating Disorders Clinical Trials

Rosalind A. Coleman (39), Diabetes: Lipid and Carbohydrate Metabolism, Obesity, Partitioning of Energy between Triacylglycerol Storage and Fatty Acid Oxidation, Regulation of Triacylglycerol Synthesis, Fatty Acid Metabolism and Cardiac Function

Penny Gordon-Larsen (78), Obesity Epidemiology, Obesity, Diabetes and Cardiovascular Risk, Longitudinal Studies, Gene by Environment Interactions

Anthony C. Hackney (50), Endocrine and Metabolic Responses to Physical Stress, Physiology of Exercise

Stephen Hursting (35), Nutrition, Metabolism, and Cancer Prevention; Obesity, Diabetes, and Cancer; Molecular Targets for Cancer Prevention

Mark Koruda, Surgery, Parenteral and External Nutrition

Sergey A. Krupenko (8), Folate Nutrition, Metabolism, and Cancer; Diet and Metastatic Disease; Metabolic Enzymes and Liver Function

Leslie Lytle (19), Obesity Prevention in Youth and Young Adults; Behavioral and Policy Interventions in School, Community, and Family Settings; Individual, Social, and Environmental Factors Related to Diet and Physical Activity

Nobuyo Maeda (77), Animal Models of Hyperlipidemia, Atherosclerosis and Cardiomyopathy

Elizabeth J Mayer-Davis (33), Nutrition and The Etiology and Treatment of Type 1 and Type 2 Diabetes in Children and Adults, Epidemiology of Diabetes in Youth and Young Adults, Diabetes Self-Management for Adolescents and Young Adults Living with Type 1 Diabetes

Barry M. Popkin (17), Nutrition Transition, Patterns and Determinants of Dietary Trends and Body Composition Trends (United States and Low-Income Countries), Obesity Dynamics and Their Environment Causes, Dietary and Physical Activity Patterns, Trends and Determinants, Creation of Large-Scale Program and Policy Initiatives to Address Nutrition-Related Noncommunicable Diseases

Susan Smith, Personalized Nutrition, Gene / Diet Interactions Affecting Prenatal Development, Iron Metabolism, Mechanisms of Fetal Alcohol Spectrum Disorders

June Stevens (56), Epidemiologic Studies of the Causes and Consequences of Obesity, Intervention Trials to Prevent Obesity, Obesity Trends, Risk Factors and Consequences among Ethnic Groups, Long-Term and Short-Term Effects of Obesity and Weight Change on Health, Impact of State Level Obesity Policies

Miroslav Styblo (72), Biochemistry and Molecular Toxicology of Essential and Toxic Trace Metals and Metalloids

Susan Sumner (36), Eastern Regional Comprehensive Metabolomics Research Center, Center for Estimating Human Health Risks from Exposure to Nanoparticles, Metabolism, Translational Sciences, Biomarkers

Deborah F. Tate (95), Obesity Prevention and Treatment in Adults and Adolescents, Application of New Technology and the Internet to Behavioral Treatments for Overweight, Obesity Treatment in Worksites and Community Settings

Dianne Ward (79), Child- and Family-Based Interventions to Prevent Obesity, Assessment of Child Care and Home Environments, Assessment of Physical Activity and Diet

Steven H. Zeisel (38), Nutrients and Brain Development, Choline Metabolism and Requirements in the Human, Nutrigenomics, Computer-Assisted Instruction

Associate Professors

Shu Wen Ng (74), Health and Behavioral Economics, Policy, Obesity Prevention, Health Equity

S. Raza Shaikh, Obesity, Infection, Inflammation, Cardiovascular Diseases, Dietary Fatty Acids, Membrane Biochemistry and Biophysics, Regulation of Mitochondrial Structure-Function

Amanda Thompson (51), Developmental Origins of Obesity, Infant Feeding, Microbiome, and Social and Behavioral Pathways Underlying the Development of Inflammation and Cardiometabolic Disease Risk

Assistant Professors

Kyle S. Burger (49), Determinants of Ingestive Behavior and Weight Regulation, Neural and Psychological Drivers and Consequences of Unhealthy Food Intake

Ian Carroll (32), Intestinal Microbiota, Host-Microbe Interactions, Brain-Gut-Microbe Axis, Gastrointestinal Diseases, Eating Disorders, Fecal Microbiota Transplants, Pro-, Pre-, Syn-, and Psychobiotics

Folami Ideraabdullah (7), Elucidating Genetic Mechanisms of Epigenetic Perturbation Caused by Environmental Exposure to Dietary Factors or Toxicants

Natalia Krupenko (3), Folate Nutrition, Methylation and Disease; Nutrients and Sphingolipid Metabolism; Ceramide and Cancer

Stephanie Martin (66), Evaluation of Behavioral Interventions in Low-Income Countries to Improve Maternal and Child Nutrition

Katie Meyer (4), Nutritional Epidemiology, Cardiovascular Disease, Dietary Behavior

Carmina Valle, Cancer Prevention and Control, Cancer Survivorship, Technology-Delivered Behavioral Interventions for Nutrition, Physical Activity, and Weight Management in Cancer Survivors, Adolescent and Young Adult Oncology, Tailored Health Communication

Saroja Voruganti (18), Nutritional and Genetic Epidemiology, Gene-Environment Interaction and Cardiovascular-Renal Diseases, Population Genetics and Ethnic Disparities

Research Professors

Martin Kohlmeier (53), Nutritional Genetics, Personal Nutrition, Online Nutrition Guidance, Biomarkers in Nutritional Epidemiology, Lipoprotein Metabolism, Vitamin K Transport and Function, Nutrition Education in Medical Schools, Computer-Assisted Instruction
Philip A. May, Prevalence and Characteristics of Children with Fetal Alcohol Spectrum Disorders (FASD) in South Africa, the United States, and Italy, Maternal Risk Factors for FASD Including Dietary Intake and Nutrition, Epidemiology Research on Public Health Problems with Major Behavioral Components

Research Associate Professors

Shufu Du (83), How Underlying Factors (Such as Education, Income, and Other SES) Affect Dietary Behaviors and Physical Activity/Inactivity and Then Health Outcomes (Cancer, Cardiovascular Diseases, Diabetes, and Obesity)
Kimberly Truesdale (73), Obesity Epidemiology, Causes and Cardiometabolic Consequences of Obesity, Effect of Weight Maintenance on Health, Minority Health, Body Composition, Diet Methodology, Diet Quality, Cost Effectiveness Analysis

Research Assistant Professors

Emma Allott (82), Molecular Epidemiology of Breast Cancer and Prostate Cancer: Role of Diet, Obesity, and Dyslipidemia in Tumor Aggressiveness and Progression; Characterization of Intertumor and Intratumor Biomarker Heterogeneity for Cancer Subtyping; Molecular Mechanisms Contributing to Cancer Health Disparities
Molly DeMarco (27), Health Disparities, Food Systems, Community-Based Participatory Research, Food Insecurity
Temitope Erinosho (11), Cancer, Nutrition and Physical Activity, Obesity
Valerie Flax (42), Design and Evaluation of Interventions Intended to Improve the Health and Nutritional Status of Mothers and Children in Low-Income Countries
Derek Hales (61), Measurement, Physical Activity, and Determinants of Physical Activity Behavior
Carmen Samuel-Hodge (86), Interventions in Diabetes Self-Management Education, Weight Loss and Lifestyle Behavior Change Interventions, Peer Counselors/Lay Advisors in Community-Based Nutrition Interventions, Family-Centered Interventions
Lindsey Smith-Taillie (6), Nutrition Epidemiology, Food and Nutrition Policy, International and United States Nutrition Transition, Social and Behavioral Determinants of Diet and Food Purchases, Disparities, Diet Quality, Diet and Obesity
Delisha Stewart, Cancer and Immunology-Focused Studies, Etiology and Progression of Cancer Microenvironments
Natalia Surzenko, Role of Choline and Other Nutrient Bioactive Compounds in the Regulation of Fetal Brain and Eye Development in Mouse Models
Stephanie Thomas, Intestinal Microbiome, Metabolomics, Intestinal Permeability, Microbiome-Gut-Brain Axis
Manya Warrier (60), One Carbon Metabolism in Adipose Browning
Heather Wasser (12), Caregiver Feeding Practices; Infant and Toddler Dietary Intakes; Nutritional Status, Growth, and Development; Determinants of Adherence to Optimal Feeding Recommendations for Children Birth to Two Years; Behavioral Interventions to Promote Optimal Growth and Development of Infants and Toddlers

Clinical Assistant Professors

Amanda S. Holliday (99), Professional Development, Clinical Nutrition, Clinical Nutrition Management, Nutrition and Aging
Eric Klett (45), Diabetes, Lipid Metabolism, Glucose Homeostasis, Dietary Lipids, Pancreatic Beta-Cell Function, Insulin Secretion, and Eicosanoid Metabolism

Adjunct Professor

John J.B. Anderson, Calcium, Isoflavones, Other Nutrients and Bone Indices in Women, Osteoporosis, Physical Activity and Body Composition, Diet and Aging

Adjunct Associate Professors

Boyd Switzer, Nutrition and Cancer
Liza Makowski Hayes, Glucose and Fatty Acid Transport, Metabolism, and Inflammation in Immune Cells in Obesity, Atherosclerosis, and Cancer
Melicia Whitt-Glover, Identify Effective Strategies to Increase Weight Loss and Weight Gain Prevention among African Americans

Adjunct Assistant Professors

Marilyn Allicock, Cancer Prevention and Control, Dissemination Research and Evaluation, Health Disparities
Melissa Bauserman, Infant Nutrition, International Nutrition, Micronutrient Deficiencies and Child Growth
Melissa Daniels, International Maternal and Child Nutrition, Dietary Assessment Methods, Screening of Malnutrition Risk
Juhaeri Juhaeri, Obesity Epidemiology, Cardiovascular Epidemiology, Pharmacoepidemiology and Epidemiology Methods
Lucia A. Leone, Food Access Disparities, Cancer and Obesity Prevention, Community-Based Interventions
Damaris Lorenzo, Genetics, Live Cell Imaging, Roles of Cytoskeletal Proteins in Human Disease
Meghan Slining, Global Obesity and Overweight, Dietary Intakes of United States Children and Adolescents

Professors Emeriti

Janice M. Dodds
Joseph C. Edozien
Maryann C. Farthing

Associate Professor Emerita

Pamela S. Haines

NUTR

Advanced Undergraduate and Graduate-level Courses

NUTR 400. Introduction to Nutritional Biochemistry. 3 Credits.
Function of the human body focusing on chemical properties, function, and metabolism of nutrients. Biochemistry of nutrients with a limited focus on medical aspects of nutrient metabolism. For advanced undergraduates and graduate students needing to enhance background prior to NUTR 600.
Requisites: Prerequisites, BIOL 101, CHEM 101 and 102, and NUTR 240; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NUTR 600. Human Metabolism: Macronutrients. 3 Credits.
Cell biochemistry and physiology emphasizing integration of proteins, carbohydrates, and lipids in whole-body metabolism; regulation of energy expenditure, food intake, metabolic adaptations, and gene expression; and macronutrient-related diseases (atherosclerosis, obesity).
Requisites: Prerequisite, NUTR 400; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

NUTR 611. Nutrition across the Life Cycle. 3 Credits.
This course covers nutrition during the life cycle. Units include women during preconception, pregnancy, and lactation; infancy; childhood; adolescence; and older adults (65+). Nutrient and energy needs, assessment of nutritional status, and cultural and socioeconomic barriers are discussed for each phase.
Requisites: Prerequisite, NUTR 400.
Grading status: Letter grade
Same as: MHCH 611.

NUTR 620. HUMAN METABOLISM: MICRONUTRIENTS. 3 Credits.
Cell biochemistry and physiology emphasizing metabolism of vitamins and minerals including antioxidant protection, immune function, nutrient control of gene expression, and disease states induced by deficiencies (e.g., iron-deficient anemia).
Requisites: Prerequisites, NUTR 400 and 600; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NUTR 630. Nutrition Communication, Counseling and Culture. 3 Credits.
Course teaches the future nutrition professional the art and science of communicating with individuals, groups, and the public. Students will enhance cultural awareness, practice counseling individuals and facilitating groups, and frame nutrition messages for mass media including social media.
Requisites: Prerequisite, NUTR 240; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

NUTR 640. Medical Nutrition Therapy I: Chronic Disease Management. 3 Credits.
Course designed to examine the rationale and implementation of diet therapy and nutrition support in the prevention or treatment of chronic disease.
Requisites: Prerequisite, NUTR 630.
Grading status: Letter grade.

NUTR 642. Medical Nutrition Therapy II: Acute Disease Management. 3 Credits.
Course designed to examine the rationale and implementation of diet therapy and nutrition support in the prevention or treatment of acute diseases.
Requisites: Prerequisite, NUTR 640.
Grading status: Letter grade.

NUTR 650. Food Science and Culinary Arts. 2 Credits.
Introduction to foods, chemical and physical properties, nutritional composition, food safety, production, and regulation.
Requisites: Prerequisite, NUTR 400; corequisite, NUTR 650L.
Grading status: Letter grade.

NUTR 650L. Food Science and Culinary Arts Laboratory. 1 Credit.
Basic culinary techniques. Classes illustrate biochemical processes and food properties covered in lecture. Introduction to new foods and food ideas. Critical evaluation of recipes. Laboratory fee required. Three laboratory hours per week.
Requisites: Corequisite, NUTR 650.
Grading status: Letter grade.

NUTR 660. Food Service Systems Management. 2 Credits.
Permission of the instructor for nonmajors. Basic concepts of institutional food service systems management applied to small and medium-sized health care facilities in the community.
Requisites: Co-requisite, NUTR 660L.
Grading status: Letter grade.

NUTR 660L. Food Service Systems Management Experience. 1 Credit.
This is a food service management practicum that applies the basic concepts of institutional food service systems. Two laboratory hours per week.
Requisites: Co-requisite, NUTR 660.
Grading status: Letter grade.

NUTR 691H. Honors Research in Nutrition. 3 Credits.
This is an honors course for research for the first semester of senior year, to be followed by NUTR 692H in the second semester. NUTR 691H/692H is a two-course sequence. Enrollment is only for students approved to conduct a senior honors thesis project.
Requisites: Prerequisite, NUTR 295.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

NUTR 692H. Honors Research in Nutrition. 3 Credits.
Permission of the instructor. Directed readings or laboratory study of a selected topic. Requires a written proposal to be submitted to and approved by the B.S.P.H. Committee and faculty research director. A written report is required. May be taken more than once for credit. Six laboratory hours per week.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

NUTR 695. Nutrition Research. 1-9 Credits.
Permission of the instructor. Individual arrangements with faculty for bachelor and master students to participate in ongoing research.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 8 total completions.
Grading status: Letter grade.

NUTR 696. Readings in Nutrition. 1-9 Credits.
Permission of the instructor. Reading and tutorial guidance in special areas of nutrition.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 8 total completions.
Grading status: Letter grade.

Graduate-level Courses

NUTR 700. Nutrition in Medicine. 2 Credits.
Comprehensive review of nutrition basics with strong clinical perspective. Integrates nutrient biochemistry and metabolism into a framework of nutritional assessment and dietary intervention.
Requisites: Prerequisite, BIOL 252 and NUTR 600.
Grading status: Letter grade.

NUTR 705. Human Nutrition. 3 Credits.
Fundamental scientific premises of human nutrition. This course covers the basic concepts of macro and micronutrients, food sources, and the evidence-based requirements for a healthy diet. This course integrates nutritional needs of populations, with an emphasis on nutrition-related diseases, including over and undernutrition.
Grading status: Letter grade.

NUTR 715. Medical Nutrition Therapy: Chronic Disease Management. 4 Credits.
A lecture and skills course where students practice skills used in nutrition therapy and the Nutrition Care Process (such as calculating caloric intake and modifying intake, calculating diabetic diets, calculating sodium content of intakes, etc.) under the supervision of a Registered Dietitian.
Requisites: Prerequisites, NUTR 611 and 630.
Grading status: Letter grade.

NUTR 720. Public Health Nutrition Management I. 2 Credits.
Focuses on the roles and functions of the public health nutritionist in providing nutrition services at the community level that includes domestic and international nutrition programs, essential public health services, community assessment methods, and community engagement. For the MPH-RD student, it includes 336 hours of field experience.
Requisites: Prerequisites, NUTR 630 and 640, HBEH 600.
Grading status: Letter grade.

NUTR 723. Public Health Nutrition Management. 3 Credits.
An overview of the planning and management of local, state, federal, and voluntary public health nutrition programs. Examines legislative and administrative structures.
Grading status: Letter grade.

NUTR 728. Nutrition Translational Research and Application. 2 Credits.
Permission of instructor for nonmajors. Designed to focus on translational nutrition research and application, including grant writing, to prepare students in clinical, public health, and policy arenas.
Requisites: Prerequisites, EPID 600, NUTR 725; and NUTR 813 recommended.
Grading status: Letter grade.

NUTR 745. International Nutrition. 3 Credits.
Provides a broad overview of international nutrition research issues, programs, and policies. Topics will include micronutrient deficiencies, child feeding and growth, determinants of under- and over-nutrition, chronic disease and nutrition, food fortification and supplementation, and nutrition intervention programs and policy.
Grading status: Letter grade.

NUTR 746. Taxes, Bans & Burgers: Directed Readings in Global Food Policy. 1 Credit.
Course will explore the social, historical, and political context of how individuals make decisions about what to eat; how this context shapes food policy; and how these policies in turn shape individual behavior, by employing a comparative framework over three countries (China, Mexico, and the U.S.).
Grading status: Letter grade.

NUTR 747. Issues in Global Nutrition. 3 Credits.
A review of the global burden of nutrition-related non-communicable diseases and to contributing global trends in the food system that shape policies and practices affecting nutrition and health outcomes.
Grading status: Letter grade.

NUTR 770. Nutrition and Health Behavior. 3 Credits.
This course is designed to introduce students to nutrition interventions and help students develop knowledge and skills necessary to critically analyze, describe, and evaluate behavioral nutrition interventions.
The course covers concepts, skills and methods related to nutrition interventions, with an emphasis on theory-based interventions at the individual, community, or environmental levels to improve health and nutrition outcomes.
Grading status: Letter grade.

NUTR 785. Graduate Teaching Experience. 1 Credit.
Permission of the instructor. Individual arrangements with faculty for a graduate student to serve as a teaching assistant for a nutrition course.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

NUTR 803. Advanced Nutrition Intervention Research Seminar. 1 Credit.
Development and application of critical thinking skills in the analysis of important nutrition and policy interventions. The course will examine conceptual models, research designs, intervention strategies, and measures of effectiveness in historical and innovative nutrition research.
Repeat rules: May be repeated for credit. 4 total credits. 2 total completions.
Grading status: Letter grade.

NUTR 805. Nutrition Policy. 3 Credits.
This course focuses on nutrition policy on a federal, state, and local level. Topics covered include policy formation, interest/consumer advocacy groups, key legislation, how research informs policy, equity and diversity, global food policy issues, sustainability and health, advocacy, and current public health nutrition policy examples. Permission of the instructor for undergraduates.
Grading status: Letter grade.

NUTR 808. Global Cardiometabolic Disease Seminar. 1 Credit.
This core seminar addresses biology, genetics, epidemiology, intervention and policy strategies relevant for addressing global cardiometabolic disease, as well as, professional development and responsible conduct of research in global settings.
Repeat rules: May be repeated for credit. 4 total credits. 4 total completions.
Grading status: Letter grade.

NUTR 810. Physical Activity Epidemiology and Public Health. 3 Credits.
This course provides an overview of major issues in physical activity measurements, population distribution, correlates, impacts (physically and economically), and public health recommendations. Interventions, including relevant theories, will be reviewed. Three lecture hours per week.
Requisites: Prerequisite, EPID 600.
Grading status: Letter grade
Same as: EPID 810.

NUTR 811. Development and Evaluation of Health Promotion and Disease Prevention Interventions. 3 Credits.
Permission of the instructor for non-majors. Doctoral seminar on application of theory and empirical evidence to intervention development, evaluation paradigms, and methods of process and outcome evaluations.
Grading status: Letter grade
Same as: HBEH 811.

NUTR 812. Introduction to Obesity: Cell to Society. 3 Credits.
Provides a broad survey of obesity research including measurement issues, biological, social and economic etiologies, health and economic consequences, and prevention and treatment of obesity.
Grading status: Letter grade.

NUTR 813. Nutritional Epidemiology. 3 Credits.
This course introduces basic methods of dietary assessment, reviews various topics in nutrition epidemiology, and teaches the skills needed for critical evaluation of the nutritional epidemiologic literature.
Requisites: Prerequisites, BIOS 600, and EPID 600 or 710.
Grading status: Letter grade
Same as: EPID 813.

NUTR 814. Obesity Epidemiology. 3 Credits.
Examines epidemiology research on the causes, consequences, and prevention of obesity. Emphasis on methodological issues pertinent to obesity research.
Requisites: Prerequisites, BIOS 545, EPID 715, 716 and NUTR 812 or NUTR 813/EPID 813.
Grading status: Letter grade
Same as: EPID 814.

NUTR 818. Analytical Methods in Nutritional Epidemiology. 3 Credits.
Skills and techniques to study how dietary exposures, physical activity, and anthropometric status relate to disease outcomes. Focus is hands-on data analysis using STATA, and interpretation of results from statistical analysis.
Requisites: Prerequisites, BIOS 545, EPID 600 or 710, and NUTR 813.
Grading status: Letter grade
Same as: EPID 818.

NUTR 845. Nutritional Metabolism. 3 Credits.
A problem-based approach to examine current topics in biochemistry relevant to nutrition and metabolism. Students interpret data and design experiments related to recent advances in nutritional biochemistry.
Requisites: Prerequisite, NUTR 600.
Grading status: Letter grade.

NUTR 861. Advanced Nutritional Biochemistry: Nutrition and Immunology. 2 Credits.
Presents an understanding of basic immunology and the role of nutrition in modifying the immune response.
Requisites: Prerequisites, NUTR 600 and 620.
Grading status: Letter grade.

NUTR 863. Adv Nutr Biochemistry: Microenvironments-Inflammation in Obesity, Atherolsclerosis, and Cancer. 2 Credits.
Will examine the interaction of cells in the microenvironment and recent advances in the role of metabolism and inflammation.
Requisites: Prerequisite, NUTR 600; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

NUTR 864. Adv Nutr Biochemistry: Oxidative Stress and Nutritional Antioxidants in Human Health and Disease. 2 Credits.
Course provides basic information about the cellular and molecular mechanisms that are responsible for generation of reactive oxygen and nitrogen species, about key cellular structures targeted by these species, and about the role of oxidative stress and antioxidants in etiology and prevention of human diseases.
Requisites: Prerequisites, BIOL 101, CHEM 102, and NUTR 400; Permission of instructor for non-majors.
Grading status: Letter grade.

NUTR 865. Advanced Nutritional Biochemistry: Nutrigenetics and Nutrigenomics. 2 Credits.
Permission of the instructor. Course focuses on nutrigenetics and nutrigenomics with an emphasis on the genetic and dietary interactions predisposing one to increased risk of disease.
Grading status: Letter grade
Same as: GNET 865.

NUTR 867. Advanced Nutritional Biochemistry: Vitamins and Disease. 2 Credits.
Focuses on the molecular processes involving B and D-group vitamins, mechanisms of pathologies caused by their deficiency, as well as the latest studies on nutritional requirements, population consumption levels, and use of the vitamins for treatment and prevention of human disease.
Requisites: Prerequisites, NUTR 600 and 620; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

NUTR 868. Advanced Nutritional Biochemistry: Nutrition and Cancer. 2 Credits.
The course will cover the biology of cancer as well as the metabolic and physiological functions of nutritional factors and how they impact the cancer process. The course will focus on aspects of current research that are relevant to links between nutritional factors, with emphasis on mechanism-based cancer prevention approaches.
Requisites: Prerequisite, NUTR 600 or equivalent.
Grading status: Letter grade.

NUTR 880. Elements of Being a Scientist. 3 Credits.
Permission of the instructor. For doctoral students prepared with Ph.D. aims/focus. Focuses on key elements that contribute to a successful career as a scientific researcher. These include scientific presentations, NIH proposal grant writing, evaluating published manuscripts, sources of funding, peer review, use of animals and humans in research, and scientific ethics.
Grading status: Letter grade.

NUTR 885. Doctoral Seminar. 1 Credit.
This course is designed for doctoral and master of science students only. Critical review of current literature in nutritional biochemistry, intervention and policy, and population-based nutrition science. Focuses on the development of skills in reviewing and criticizing articles.
Grading status: Letter grade.

NUTR 910. Nutrition Research. 1-9 Credits.
Individual arrangements with faculty for doctoral students to participate in ongoing research.
Grading status: Letter grade.

NUTR 920. Research Rotations for Nutritional Biochemistry Doctoral Students. 1-3 Credits.
Two laboratory or research group rotations supervised by nutritional biochemistry faculty. Provides a breadth of research experience for students prior to selecting dissertation adviser. Up to six laboratory hours per week.
Grading status: Letter grade.

NUTR 992. Master's (Non-Thesis). 3 Credits.

NUTR 993. Master's Research and Thesis. 3 Credits.

NUTR 994. Doctoral Research and Dissertation. 3 Credits.

Master of Public Health (M.P.H.) Nutrition with Registered Dietitian (R.D.) Training Concentration Description

The unique Nutrition M.P.H./R.D. concentration (https://sph.unc.edu/resource-pages/master-of-public-health-2/mph-rd-program) integrates the scientific study of nutrition and dietetics with a foundation in public health practice and research. Meant for aspiring clinical dietitians who are motivated to help people live healthier lives through better nutrition, the program offers students customized internship placement services

to help fulfill the requirements to sit for the Commission on Dietetic Registration exam.

Requirements

Requirements for the **M.P.H.** degree in the **Nutrition-R.D.*** concentration

Code	Title	Hours
M.P.H. Integrated Core		
SPHG 711	Data Analysis for Public Health Fall 1	2
EPID 711	Clinical Measurement and Evaluation Fall 1	3
SPHG 713	Understanding Public Health Issues Fall 1	2
SPHG 721	Conceptualizing Public Health Solutions Spring 1	2
SPHG 722	Developing, Implementing, and Evaluating Public Health Solutions Spring 1	4
M.P.H. Concentration		
NUTR 611	Nutrition across the Life Cycle Fall 1	3
NUTR 630	Nutrition Communication, Counseling and Culture Fall 1	3
NUTR 400	Introduction to Nutritional Biochemistry Spring 1	3
NUTR 640	Medical Nutrition Therapy I: Chronic Disease Management Spring 1	3
NUTR 600	Human Metabolism: Macronutrients Fall 2	3
NUTR 723	Public Health Nutrition Management Fall 2	3
NUTR 805	Nutrition Policy Fall 2	3
NUTR 620	HUMAN METABOLISM: MICRONUTRIENTS Spring 2	3
NUTR 813	Nutritional Epidemiology Spring 2	3
NUTR 650 & 650L	Food Science and Culinary Arts and Food Science and Culinary Arts Laboratory Spring 2	3
Food Management Experience Spring 2		
Advanced Placement Summer 2		
M.P.H. Practicum		
SPHG 701	MPH Practicum Preparation Spring 1	2
Practicum: 200 minimum hours Summer 1		
SPHG 702	MPH Practicum Reflection Fall 2	1
M.P.H. Culminating Experience		
NUTR 992	Master's (Non-Thesis) Summer 2	3
Total Hours		49

Competencies

Students will develop the following **Nutrition-R.D.* competencies**, building on the foundational public health knowledge they attain in the Gillings M.P.H. Integrated Core courses. After successful demonstration of these ACEND[1] competencies, students will be eligible to sit for the Registered Dietician credentialing exam.

C1.1.	Applies an understanding of environmental, molecular factors (e.g. genes, proteins, metabolites) and food in the development and management of disease.
C1.2.	Applies an understanding of anatomy, physiology, and biochemistry.
C1.3.	Applies knowledge of microbiology and food safety.
C1.4.	Integrates knowledge of chemistry and food science as it pertains to food and nutrition product development and when making modifications to food.
C1.5.	Applies knowledge of pathophysiology and nutritional biochemistry to physiology, health, and disease.
C1.6.	Applies knowledge of social, psychological, and environmental aspects of eating and food.
C1.7.	Integrates the principles of cultural competence within own practice and when directing services.
C1.8.	Applies knowledge of pharmacology to recommend, prescribe and administer medical nutrition therapy.
C1.9.	Applies an understanding of the impact of complementary and integrative nutrition on drugs, disease, health, and wellness.
C1.10.	Applies knowledge of math and statistics.
C1.11.	Applies knowledge of medical terminology when communicating with individuals, groups, and other health professionals.
C1.12.	Demonstrates knowledge of and is able to manage food preparation techniques.
C1.13.	Demonstrates computer skills and uses nutrition informatics in the decision making process.
C1.14.	Integrates knowledge of nutrition and physical activity in the provision of nutrition care across the life cycle.
C1.15.	Applies knowledge of nutritional health promotion and disease prevention for individuals, groups, and populations.
C1.16.	Gains a foundational knowledge on public and global health issues and nutritional needs.
C2.1.	Applies a framework to assess, develop, implement, and evaluate products, programs, and services.
C2.2.	Selects, develops, and/or implements nutritional screening tools for individuals, groups, or populations.
C2.3.	Utilizes the nutrition care process with individuals, groups or populations in a variety of practice settings.

C2.4.	Implements or coordinates nutritional interventions for individuals, groups or populations.
C2.5.	Prescribes, recommends and administers nutrition-related pharmacotherapy.
C3.1.	Directs the production and distribution of quantity and quality food products.
C3.2.	Oversees the purchasing, receipt and storage of products used in food production and services.
C3.3.	Applies principles of food safety and sanitation to the storage, production and service of food.
C3.4.	Applies and demonstrates an understanding of agricultural practices and processes.
C4.1.	Utilizes program planning steps to develop, implement, monitor and evaluate community and population programs.
C4.2.	Engages in legislative and regulatory activities that address community, population and global nutrition health and nutrition policy.
C5.1.	Demonstrates leadership skills to guide practice.
C5.2.	Applies principles of organization management.
C5.3.	Applies project management principles to achieve project goals and objectives.
C5.4.	Leads quality and performance improvement activities to measure, evaluate and improve a program services, products and initiatives.
C5.5.	Develops and leads implementation of risk management strategies and programs.
C6.1.	Incorporates critical thinking skills in practice.
C6.2.	Applies scientific methods utilizing ethical research practices when reviewing, evaluating and conducting research.
C6.3.	Applies current research and evidence-informed practice to services.
C7.1.	Assumes professional responsibilities to provide safe, ethical and effective nutrition services.
C7.2.	Uses effective communication, collaboration and advocacy skills.

* ACEND (https://www.eatrightpro.org/acend), 2017 Accreditation Standards for Graduate Degree Programs in Nutrition and Dietetics (FG) Future Education Model. (https://www.eatrightpro.org/-/media/eatrightpro-files/acend/futureeducationmodel/femgraduatefinal.pdf?la=en&hash=89123715A3E0E426F0A0CA960299FFEA06714FE5)

Master of Public Health (M.P.H.) Nutrition Concentration Description

The Nutrition concentration (https://sph.unc.edu/resource-pages/master-of-public-health-2/nutrition-concentration) focuses on nutrition science as well as on behavior change, communication, counseling, and the effects of dietary culture on the individual and within communities. Students gain the skills to assess scientific evidence for nutritional guidelines, effectively communicate nutritional information to the public, evaluate how social, cultural, and environmental factors affect nutrition-related health outcomes, and practice in compliance with federal regulations and state statutes.

Requirements

Requirements for the **M.P.H.** degree in the **Nutrition** concentration

Code	Title	Hours
M.P.H. Integrated Core		
SPHG 711	Data Analysis for Public Health Fall 1	2
SPHG 712	Methods and Measures for Public Health Practice Fall 1	2
SPHG 713	Understanding Public Health Issues Fall 1	2
SPHG 721	Conceptualizing Public Health Solutions Spring 1	2
SPHG 722	Developing, Implementing, and Evaluating Public Health Solutions Spring 1	4
M.P.H. Concentration		
NUTR 705	Human Nutrition Fall 1	3
NUTR 611	Nutrition across the Life Cycle Spring 1	3
NUTR 630	Nutrition Communication, Counseling and Culture Fall 2	3
NUTR 805	Nutrition Policy Fall 2	3
NUTR 813	Nutritional Epidemiology Spring 2	3
M.P.H. Practicum		
SPHG 701	MPH Practicum Preparation Spring 1	2
Practicum: 200 minimum hours Summer 1		
SPHG 701	MPH Practicum Preparation Fall 2	2
M.P.H. Electives		
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
M.P.H. Culminating Experience		
NUTR 992	Master's (Non-Thesis) Spring 2	3
Total Hours		43

Competencies

Students will develop the following **Nutrition competencies**, building on the foundational public health knowledge they attain in the Gillings M.P.H. Integrated Core courses.

NUTR01.	Assess the scientific evidence for nutritional guidelines/ recommendations.

NUTR02.	Assess dietary intake and nutrition status of individuals and populations.
NUTR03.	Evaluate how social, cultural, environmental, and community factors have an impact upon dietary intake and nutrition-related outcomes in individuals, families, and communities.
NUTR04.	Independently plan, develop, and evaluate nutrition-related health promotion/disease prevention services, products, programs, or interventions (including policy analysis), using appropriate evidence or data.
NUTR05.	Demonstrate proficiency in writing evidence-based nutrition-related professional and consumer communications, using a variety of communication platforms.
NUTR06.	Practice in compliance with current federal regulations and state statutes and rules related to public health nutrition programs.

Admissions

Please visit Applying to the Gillings School (https://sph.unc.edu/students/how-to-apply) first for details and information. Application to the residential M.P.H. is a two-step process. Please apply separately to (1) SOPHAS and (2) UNC–Chapel Hill (via the Graduate School application). Visit https://gradschool.sites.unc.edu/master-of-public-health/ for more details. If you are interested in the online M.P.H., please visit the M.P.H.@UNC (https://onlinemph.unc.edu) Web site and fill out an inquiry form.

Practicum

This 200 (minimum) hour planned, mentored, and evaluated work experience (paid or unpaid) gives students the real-world opportunity to integrate and apply knowledge, skills, and values from Year One of their Gillings M.P.H. training in a professional public health setting such as a nonprofit organization, hospital, local or state health department, or for-profit firm (public or private sectors). Please visit the M.P.H. Practicum Web site (https://sph.unc.edu/resource-pages/master-of-public-health-2/mph-practicum) for additional information. In order to meet graduation requirements, a Gillings M.P.H. practicum must:

1. Occur after a student has completed the Gillings M.P.H. Core courses, the M.P.H. practicum preparation course (SPHG 701), and at least one concentration-required course from the student's declared concentration. In extenuating circumstances and with the approval from the student's declared concentration, some exceptions may apply.
2. Yield a least two student-generated products, produced in the practicum setting for the practicum setting, that allow for attainment of at least three (CEPH) M.P.H. Foundational and two concentration-specific competencies (Appendix A). In extenuating circumstances and with the approval from the concentration, students can petition to substitute up to two CEPH Foundational competencies for the concentration-specific competencies.
3. Be mentored by a supervisor (preceptor) with an advanced degree in public health or equivalent experience with expertise in the practicum project area.
4. Comprise a *minimum* of 200 hours (equivalent to five weeks of full-time work) in a location approved for student travel (UNC Travel Policy (https://global.unc.edu/files/2018/02/UNC-Travel-Policy-Final.pdf)), and the student must complete *UNC Gillings International Pre-Departure Travel Requirements* prior to travel.

Culminating Experience

Each student completes a 3-credit culminating experience and produces a high-quality written product that is completed near the end of the program of study. This culminating experience ideally is delivered in a manner that is useful to external stakeholders, such as nonprofit or governmental organizations, and could take the form of a course-based capstone project or master's paper, but will be tailored to the concentration a student chooses.

Academic Advising and Faculty Mentoring

We are committed to providing quality academic advising and mentoring for all students. We ensure that M.P.H. students get the guidance they need with several components: 1) an orientation program that provides an overview of the types and sources of M.P.H. advising; 2) cohort advising sessions to disseminate information that is relevant to course planning and registration; 3) faculty mentoring that provides students with tailored support for their academic, professional, personal development, and practicum support.

M.P.H. students will complete a 2-semester, 12-credit-hour **Integrated Core** taught by an interdisciplinary team of instructors. The 6-credit first semester (fall) focuses on understanding public health issues, and the second semester (6-credit spring courses) focuses on creating solutions to those issues.

All M.P.H. students take **COMPASS (Core Online Modules to Promote and Accelerate Student Success).** These brief, self-paced online modules are open for students prior to their first academic year. Students can complete any and all parts of COMPASS up to and including the first week of class.

Electives: For the remaining 9 credits, students are free to choose elective courses from any of the 12 concentration areas listed above or from other courses in the Gillings School.

For information on policies and procedures, please visit the Gillings School Student Handbook (https://sph.unc.edu/students/gillings-school-student-handbook) Web site.

DIVISION OF OCCUPATIONAL SCIENCE AND OCCUPATIONAL THERAPY (GRAD)

Contact Information

Division of Occupational Science and Occupational Therapy
Visit Program Website (http://www.med.unc.edu/ahs/ocsci)

Nancy Bagatell, Director
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The Division of Occupational Science and Occupational Therapy in the Department of Allied Health Sciences offers two graduate programs: a master of science (M.S.) degree with a major in occupational therapy and a doctor of philosophy (Ph.D.) degree in occupational science. The M.S. in occupational therapy program is a two-year program designed for individuals with a baccalaureate degree in a field other than occupational therapy. It is an entry-level program for individuals who wish to become occupational therapists. The Ph.D. program in occupational science accepts applicants with an earned master's degree in occupational therapy or a related field (see admission requirements below). The doctoral program prepares individuals who wish to pursue academic careers that could include teaching, research, and other scholarly activities related to occupational science and occupational therapy.

Requirements for Admission into the M.S. Program in Occupational Therapy

1. Bachelor's degree from an accredited institution
2. Submission of Graduate Record Examination (GRE) scores from the Educational Testing Service
3. Academic record that demonstrates potential to do work at the graduate level
4. Completion of the occupational therapy supplemental application

The M.S. program has eight prerequisite courses, four of which are fixed (core body of knowledge) and four of which fall into categories that are "flexible," meaning that a variety of courses can fulfill the requirement in that category. All prerequisites except the occupation course must be taken for credit in an accredited academic institution of higher learning and must be no more than five years old at the time of application. The occupation prerequisite must be no more than three years old.

Fixed Prerequisites

1. Human anatomy with a laboratory[1]
2. Human physiology[1]
3. Abnormal psychology
4. Introductory statistics

[1] A two-semester sequence of combined anatomy and physiology; parts I and II may be substituted for separate courses.

Flexible Prerequisites

1. Human/individual behavior (for example: developmental psychology; child development; adulthood and aging; cognitive psychology; neuropsychology)
2. Modes of reasoning (for example: philosophy; ethics; statistics or data analysis [beyond the introductory course]; comparative religion, art, or music; literature taught in a foreign language; research design or methods)
3. Study of social relationships, institutions, and systems (for example: linguistics; cultural/social anthropology; sociology [beyond intro level]; public health; public policy; leisure studies; political science; minority studies)
4. Occupation: Complete a course in either an academic or community-based setting that requires the skills of your body as well as your mind. The occupation prerequisite must have the following characteristics:
   - new learning/challenge (not something you already do or know how to do)
   - formal (structured) learning context, but does not have to be a "for credit" course
   - at least once a week for a minimum of six weeks
   - social context (other learners present in person; online courses are not accepted)
   - results in an end product or performance
   - learners must be active (not just recipients of information)
   - course content is not designed to be used to benefit, teach, or communicate with others

Examples include creative writing, poetry writing, studio art class, woodworking, jewelry making, theater, dance, music, and some sports.

The master of science program requires a minimum of 63 semester credit hours. The program is 24 months in length and includes substantial field work experience.

Occupational therapy courses are available only to graduate students enrolled in the M.S. program at the University.

Requirements for Admission into the Ph.D. Program in Occupational Science

The Ph.D. program in occupational science accepts academically qualified applicants who have completed master degrees in occupational therapy, relevant social and behavioral sciences, or related health fields. Applicants receive a thorough review for evidence of potential success in a doctoral program in The Graduate School at UNC–Chapel Hill. In order to achieve closely mentored research experiences, only applicants with expressed interests consistent with existing programs of research and scholarly work of the faculty are admitted. Final selection among qualified applicants will be based on an interview with core faculty members in the Ph.D. program in occupational science. Review the UNC–Chapel Hill Web site for information about applying to The Graduate School. In addition to the formal application to The Graduate School, the following information is required:

1. Copies of all undergraduate and graduate transcripts
2. Graduate Record Examination (GRE) scores (taken within the last five years)
3. Results of the TOEFL (Test of English as a Foreign Language, if applicable)
4. A reflective essay detailing personal and professional goals relevant to the pursuit of a Ph.D. in occupational science at UNC–Chapel Hill and

5. Three letters of recommendation from individuals who support the applicant's potential as an educator and scholar

The Ph.D. program requires a minimum of 45 semester credit hours beyond the master's degree. This course of study covers four domains:

1. Occupational science
2. An interdisciplinary cognate area that complements occupational science
3. Research design and methodology
4. Competencies for an academic career

All graduates must complete a doctoral dissertation in occupational science. Students are also expected to reach satisfactory competence in teaching and research as determined by their career goals.

With approval from the instructor, occupational science courses are open to graduate students interested in

1. The study of people engaged in everyday activities in different situations and
2. How various experiences in an activity or patterns of engagement influence development, health, and quality of life across the lifespan.

Clinical Professors

Susan Coppola, Aging, Interprofessional Education, International Practice, Humanities in Health Care
Jenny Womack, Aging, Community-Based Practice, Physical Rehabilitation, Assistive Technology, Universal Design and Environmental Modifications

Clinical Associate Professors

Nancy Bagatell, Adolescents and Adults with Autism and Other Developmental Disabilities: Independent Living and Community Participation
Lauren Holahan, School-Based Occupational Therapy
Linn Wakeford, Occupation-Centered Services for Infants and Preschoolers with Developmental Delay, Diversity and Inclusion

Assistant Professor

Antoine Bailliard, Social Justice, Mental Health, Sensory Processing

Clinical Assistant Professor

Raheleh Tschoepe, Physical Rehabilitation, Spinal Cord Injury and Other Neurologic Rehabilitation, Seating and Positioning, Community Reintegration

Katie Sorensen, Physical Rehabilitation, Disability Rights and Advocacy, Fieldwork

Professor Emerita

Ruth Humphry
Cathy Nielson

Associate Professors Emeritae

Virginia Dickie
Jane Rourk

OCCT (Occupational Therapy)

Graduate-level Courses

OCCT 704. Research in Occupational Science and Therapy. 3 Credits.
Examination of research approaches and issues within occupational science and occupational therapy. Development of skills in writing research proposals and applying research results to insure evidence-based practice.
Grading status: Letter grade.

OCCT 720A. Fieldwork II. 6 Credits.
Direct experience with clients/patients in varied service treatment settings. Experience will include adult disabilities.
Grading status: Letter grade.

OCCT 720B. Fieldwork II. 6 Credits.
Direct experience with clients/patients in varied service treatment settings. Experience will include adult disabilities.
Grading status: Letter grade.

OCCT 725. Human Capacities: Body Structures and Functions I. 3 Credits.
An introduction to the structures, functions, and processes of the human body that support participation. Mental and sensory processing, digestion, reproduction, endocrine, and immune responses that support occupation are explored.
Grading status: Letter grade.

OCCT 726. Human Capacities: Body Structures and Functions II. 3 Credits.
An introduction to the structures, functions, and processes of the human body that support participation. The focus is on motor and somatosensory capacities and the structures related to those functions.
Grading status: Letter grade.

OCCT 727. Perspectives on Disability and Health I. 2 Credits.
An exploration of the biological and phenomenological aspects of specific mental and physical health conditions that may be experienced by children, adolescents, and young adults.
Grading status: Letter grade.

OCCT 728. Perspectives on Disability and Health II. 2 Credits.
This course addresses the biological and phenomenological aspects of specific mental and physical health conditions that may be experienced by adults.
Requisites: Prerequisite, OCCT 727.
Grading status: Letter grade.

OCCT 729. Perspectives on Disability and Health III. 2 Credits.
Complex health conditions and changes affecting older adults' capacity to engage in meaningful occupations. Biomedical and narrative perspectives.
Requisites: Prerequisite, OCCT 727.
Grading status: Letter grade.

OCCT 736. Occupational Therapy Practice Environments. 3 Credits.
Overview of OT practice settings, professional organizations, and regulatory bodies. Factors influencing practice, including legislation, reimbursement, documentation, and culture of communities. Ethics, confidentiality, self-awareness, teamwork, and professionalism in practical settings.
Grading status: Letter grade.

OCCT 755. Foundations of Occupational Therapy Practice. 3 Credits.
Introduction of core foundations for occupation-centered occupational therapy practice. Students learn fundamentals of professional communication and behavior, therapeutic use of self, clinical reasoning, activity analysis, theory, and evidence-based practice.
Grading status: Letter grade.

OCCT 756. Therapeutic Processes I. 3 Credits.
Occupational therapy majors only. This course focuses on occupational therapy practice with children, adolescents, and young adults who have disabilities or health problems that inhibit occupational performance and/or social participation, across a variety of situations.
Requisites: Prerequisites, OCCT 755 and 765L.
Grading status: Letter grade.

OCCT 757. Therapeutic Processes II. 3 Credits.
A focus on occupational therapy practice with adults that have physical and/or mental health conditions that impact their participation in occupations.
Requisites: Prerequisite, OCCT 727.
Grading status: Letter grade.

OCCT 765L. Foundations of Occupational Therapy Practice Lab. 2 Credits.
Provides opportunities for students to practice and begin developing key clinical skills in observation, analysis, interpersonal interactions/communication, documentation, and applying concepts related to theory-based and evidence-based practice.
Grading status: Letter grade.

OCCT 766L. Therapeutic Processes Lab I. 2 Credits.
Occupational therapy majors only. Provides opportunities for students to practice and begin developing key clinical skills in assessment, intervention planning, intervention strategies, and documentation in practice with children, adolescents, and young adults.
Requisites: Prerequisites, OCCT 755 and 765L.
Grading status: Letter grade.

OCCT 767L. Therapeutic Processes Lab II. 1 Credit.
This applied lab addresses the content and technical skills of practice with adults who encounter occupational therapy due to various life and health conditions.
Requisites: Prerequisite, OCCT 766L.
Grading status: Letter grade.

OCCT 770. Occupational Science. 3 Credits.
Introduction to the philosophical tenets of occupational science and their application to occupational therapy. The course highlights the multiplicity of interconnected factors which generate participation in occupational situations.
Grading status: Letter grade.

OCCT 771. Life Course I: Early Years. 2 Credits.
Changing capacities for engagement with occupations and occupational opportunities during childhood, adolescents, and early adulthood.
Grading status: Letter grade.

OCCT 772. Life Course II: Adulthood. 1 Credit.
Examination of the patterns of participation through occupational engagement with families, communities, workplace, and other social structures in the middle years of the life course.
Requisites: Prerequisite, OCCT 771.
Grading status: Letter grade.

OCCT 773. Life course III: Older Adults. 3 Credits.
Changing capacities for engagement with occupations and occupational opportunities during older adulthood. Strategies for compensation and adaptation.
Requisites: Prerequisites, OCCT 771, 772.
Grading status: Letter grade.

OCCT 781. Environments and Technologies. 2 Credits.
Occupational therapy majors only. Exploration of environmental dimensions of performance. Learn to use assistive and rehabilitation technologies in practice. Students assess situational impact on performance, modify the environment for therapeutic effect, and utilize technology.
Grading status: Letter grade.

OCCT 836. Community Level OT Practice. 3 Credits.
This course develops the students' understanding of social systems, how they function, and are perpetuated through everyday practices. Students partner with community entities to identify strengths, resources, and service gaps and develop a response.
Requisites: Prerequisites, OCCT 727, 728, 757.
Grading status: Letter grade.

OCCT 837. Professional Development and Transition to Practice. 2 Credits.
Professional understanding and skills to assess practice context, plan programs, and management of profession interpersonal relationship for collaboration and service delivery.
Requisites: Prerequisite, OCCT 736.
Grading status: Letter grade.

OCCT 896. Independent Study: Occupational Therapy and Science. 1-15 Credits.
Elective. Independent study to pursue specific interests and topics. Faculty supervision. May be repeated for credit.
Grading status: Letter grade.

OCCT 990. Applied Research Seminar I. 1 Credit.
Applied Research Seminar with particular focus on the application of the scientific process to address an identified clinical problem.
Requisites: Prerequisite, OCCT 704.
Grading status: Letter grade.

OCCT 992. Master's Applied Research Experience. 3 Credits.
Collaborative research projects in occupational science or occupational therapy. Emphasis on data collection, analysis, and professional communications of research findings.

OCCT 993. Master's Research and Thesis. 3 Credits.
Permission of the department.
Repeat rules: May be repeated for credit.

OCSC (Occupational Science)

Graduate-level Courses

OCSC 845. Conceptual Introduction to Occupational Science. 3 Credits.
Deconstruction of the original precepts of occupational science while examining several works from other disciplines. Study of early and recent trends and critiques of occupational science to develop an assessment of the state of the discipline and future directions.
Grading status: Letter grade.

OCSC 855. Action Theories. 3 Credits.
A reading and discussion of major theories of action from various disciplines. Works read will also entail associated issues such as identity, place, culture, and social relations
Grading status: Letter grade.

OCSC 890. Seminar on Special Topics in Occupational Science. 3 Credits.
Discussion and critical evaluation of philosophy, theory, and scientific issues associated with the study of people's activities in the context of their everyday lives. Topics differ each semester.
Grading status: Letter grade.

OCSC 896. Independent Study in Occupational Science. 3 Credits.
Independent study to pursue specific interests and topics under faculty supervision.
Grading status: Letter grade.

OCSC 994. Doctoral Research and Dissertation. 3 Credits.
Doctoral dissertation in occupational science.

DEPARTMENT OF PATHOLOGY AND LABORATORY MEDICINE (GRAD)

Contact Information

Department of Pathology and Laboratory Medicine
Visit Program Website (http://www.med.unc.edu/pathology)

J. Charles Jennette, Chair

Herbert C. Whinna, Vice Chair for Clinical Services and Director of McLendon Clinical Laboratories

Joan M. Taylor, Vice Chair for Research

Graduate work in the Department of Pathology and Laboratory Medicine is offered through the Pathobiology and Translational Science graduate program to those interested in acquiring more extensive knowledge of disease pathogenesis. Major emphasis is given to the laboratory investigation of molecular and cellular mechanisms responsible for disease initiation, progression, and treatment. Students are given the opportunity to undertake candidacy for the doctor of philosophy degree. Participation in research activities leading to an original dissertation is required of all advanced degree candidates.

Prospective candidates must hold a bachelor's degree from an accredited college or university. Admission to the program is through the Biologic and Biomedical Sciences program (http://bbsp.unc.edu).

The department is located in the Brinkhous-Bullitt Building, and offers well-equipped, internationally recognized laboratories for research and advanced work in pathology.

Please visit the graduate program's Web site (https://www.med.unc.edu/pathology) for more graduate program information.

Professors

Frank C. Church, Thrombosis and Hemostasis, Macromolecular Protein Structure-Function, Molecular Pathology
Leslie G. Dodd, Surgical Pathology, Cytopathology
Claire Doerschuk, Diseases Affecting the Airways of the Lung
Ronald J. Falk, Glomerular Disease, Lupus, Vasculitis, Dialysis
Margaret L. Gulley, Molecular Diagnostics, Oncology, Epstein-Barr Virus
J. Charles Jennette, Renal Pathology, Immunopathology
David G. Kaufman, Human Origins of DNA Replication, Interactions between Human Endometrial Epithelial and Stromal Cells
Nigel Key, Thrombosis and Hemostasis
Christopher P. Mack, Transcriptional Regulation in the Cardiovascular System, Smooth Muscle Cell Biology
Nigel Mackman, Thrombosis and Hemostasis
Nobuyo Maeda, Molecular Genetics of Atherosclerosis, Transgenic Laboratory Animals as Model Systems, Molecular Evolution
Susan J. Maygarden, General Surgical Pathology, Cytopathology, Prostate Carcinogenesis
Melissa B. Miller, Molecular Diagnostics, Antimicrobial Resistance, Molecular Epidemiology of MRSA
Valerie Murrah, Oral, Head, and Neck Pathology
Timothy C. Nichols, General Cardiology, Cardiac Catheterization, Per-Cutaneous Transluminal Coronary Angioplasty
Volker Nickeleit, Renal Pathology, Fibronectins
Charles M. Perou, Breast Cancer, Genomics, Microarrays, Tumor Classification, Drug Resistance
John L. Schmitz, Flow Cytometry, HIV, Diagnostic Immunology, Sexually Transmitted Diseases
Harsharan K. Singh, Cytopathology, Fine Needle Aspiration Biopsy, Renal Pathology
James A. Swenberg, Chemical Carcinogenesis, Toxicology, Mass Spectroscopy, DNA Damage and Repair, Endogenous DNA Damage
Joan M. Taylor, Adhesion Signaling, Cardiovascular Disease
Cyrus Vaziri, Regulation of DNA Replication, S-Phase Checkpoints, and Post-Replication DNA Repair on Mammalian Cells
Bernard E. Weissman, Tumor Suppressor Genes
Alisa S. Wolberg, Cellular and Molecular Mechanisms in Hemostasis and Thrombosis
John T. Woosley, Dermatopathology, Hepatobiliary and Gastrointestinal Pathology, Histopathologic Assessment of Prognosis

Associate Professors

Georgette A. Dent, Hematopathology, Medical Education
George Fedoriw, Hematopathology; Applications of Flow Cytometry
Mehmet Kesimer, Mucin Glycobiology and Airway Epithelial Pathobiology
Nicole L. Korpi-Steiner, Clinical Chemistry
Jiandong Liu, Cardiovascular Biology
Jason Merker, Molecular Pathology
Yara Park, Transfusion Medicine
Li Qian, Cardiovascular and Stem Cell Biology
Young E. Whang, Androgen Receptor, Prostate Cancer
David C. Williams Jr., Hematopathology, NMR Spectrophotometry and Structural Biology
Scott Williams, Stem Cell and Developmental Biology
Qing Zhang, Cancer Cell Biology

Assistant Professors

Nathan Montgomery, Hematopathology and Molecular Genetic Pathology
Eric T. Weimer, Histocompatibility, Flow Cytometry and Clinical Microbiology/Immunology
Sara E. Wobker, Genitourinary Pathology

Clinical Professors

Michelle Aurelius, Forensic Pathology
Peter Banks
Thomas W. Bouldin, Neuropathology, Ocular Pathology, Neurotoxicology
Paul Googe, Dermatopathology
Pamela M. Groben, Dermatopathology
Kathleen A. Kaiser-Rogers, Clinical Cytogenetics
Deborah L. Radisch, Forensic Pathology
Scott V. Smith, Surgical Pathology, Cardiovascular Pathology, Pediatric Pathology
Leigh B. Thorne, Molecular Pathology, Autopsy Pathology
Karen E. Weck, Molecular Genetic Pathology

Clinical Associate Professors

Jessica K. Booker, Genetics, Breast Cancer|
Benjamin Calhoun, Breast Pathology
Adil Gasim, Nephropathology
Kevin Greene, Surgical Pathology of the Liver and Gastrointestinal Tract
Susan C. Hadler, Oral Diagnosis
Nabila Haikal, Forensic Pathology

Jonathon W. Homeister, Leukocyte Trafficking, Inflammatory Vascular Disease, Thrombosis and Hemostasis, Cardiovascular Pathology, Autopsy Pathology
Siobhan M. O'Connor, Breast Pathology, GYN Pathology, Cytopathology
Eizaburo Sasatomi, Gastrointestinal and Liver Pathology
Lori R. Scanga, Surgical Pathology, Cytopathology
Dimitri G. Trembath, Surgical Pathology and Neuropathology
Herbert C. Whinna, Mechanisms of Hemostasis and Thrombosis, Biochemistry and Vascular Biology of Blood Coagulation, Protein Structure-Function

Clinical Assistant Professors

Sue Ann Berend, Cytogenetics
Sandra Bishop-Freeman, Forensic Toxicology
Christine Bookhout, Surgical Pathology
Justin Brower, Forensic Toxicology
Steven Cotten, Clinical Chemistry
Johann D. Hertel, Cytopathology
Julie Hull, Forensic Pathology
Kimberly Janssen, Forensic Pathology
Stephanie P. Mathews, Hematopathology
Jayson Miedema, Dermatopathology
Vincent J. Moylan Jr., Cardiac Pathology and Autopsy Pathology
Craig Nelson, Forensic Pathology; Water-Related Deaths, Including Drowning of All Kinds and Particularly Scuba, Rebreather, and Freediving Deaths
T. Danielle Samulski, Gynecologic Pathology, ENT Pathology, and Cytopathology
Lauren Scott, Forensic Pathology; Preventive Health, Especially Suicide and Accident Prevention; the Value of Autopsy in Medical Education
R. Chad Siniard, Transfusion Medicine, Molecular Pathology, and Bioinformatics
Susan Venuti, Forensic Pathology

Clinical Instructors

Steve Holmes, Examination of Simple and Complex Specimens, Surgical Pathology
April E. Kemper, Autopsy Pathology, Surgical Pathology
Tracie W. Massey, Tissue Procurement; Surgical Pathology
Andre Phelan, Pathologists' Assistant: Surgical Pathology Training for Residents and Students

Research Instructor

Diane Armao, Neuropathology

Research Professors

Rosann A. Farber, Genetic Instability in Cancer, Human Molecular Genetics, Microsatellite Instability
Craig A. Fletcher, Vascular Biology
Virginia L. Godfrey, Veterinary Pathology, Animal Models of Genetic Disease, Autoimmunity
Tracy M. Heenan, Laboratory-, Exotic- and Companion-Animal Medicine
Shanmugam Nagarajan, Immunologic and Inflammatory Mechanisms of Diseases in Atherosclerosis, Vasulitis, and Glomerulonephritis
Melissa Troester, Molecular Studies with Human Populations
Maimoona A. Zariwala, Genetic Analysis of Patients with Primary Ciliary Dyskinesia (PCD)

Research Associate Professors

Brian Cooley, Thrombosis, Vascular Injury, Microsurgery
Ajay Gulati, Pediatric Gastroenterology
Peiqi Hu, Immune-Mediated Kidney Disease
Masao Kakoki, Prevention of Cardiovascular Diseases
Steven Shipley, Laboratory Animal Medicine; Infectious Disease
Julia W. Whitaker, Laboratory Animal Medicine
Hong Xiao, Immune-Mediated Glomerular Disease and Vasculitis

Research Assistant Professors

Silvio Antoniak, Protease-Activated Receptors in Cardiovascular Diseases, Myocarditis, and Heart Failure Animal Models
Pablo Ariel, Director of the Microscopy Services Laboratory
J. Todd Auman, Pharmacogenomics, Cancer Pharmacology
Xue Bai, Molecular and Functional Roles of RhoGaps in Hypertension and Metabolism Regulation
Victoria Baxter, Pathogenesis of and Host Immune Response to Infectious Disease, Particularly Encephalomyelitic Arboviruses; Animal Model Development
Yanzhe Gao, DNA Replication, Damage, and Repair
Feng Li, Cardiovascular Biology
C. Tyler Long, Laboratory Animal Medicine
Stephanie A. Montgomery, Comparative Pathology and Animal Histopathology
Allison Rogala, Laboratory Animal Medicine Services, Comparative Medicine, and Host-Microbial Interactions
Jonathan Schisler, Translational Research in Patients with Myocardial Infarcts
Lauren Wimsey Laboratory Animal Medicine Services, Comparative Medicine
Yang Yang, DNA Damage and Repair

Adjunct Professors

Albert Baldwin, Biology
Mark E. Brecher, Blood Component Processing and Storage, Transfusion Strategies, Transfusion Transmitted Diseases
Jared Block, Hematology and Hematopathology
William B. Coleman, Breast Cancer Epigenetics, Biology of Liver Stem Cells, Hepatocarcinogenesis, Cancer Molecular Diagnostics**M. Peter H. Gilligan,** Diagnostic Bacteriology, Pulmonary Disease in Cystic Fibrosis, Toxin Mediated Diarrheal Disease
David Goodman, Medical Education and Autopsy Pathology
H. Michael Jones, Medical Education at Medical Student and Resident Level, Medical History, Autopsy Pathology, Research Support
Joe N. Kornegay, Duchenne Muscular Dystrophy, Canine Model, Translational Studies, Muscle Hypertrophy
Myla Lai-Goldman, Personalized Molecular Diagnostics
Chad A. Livasy, Surgical Pathology
Roger Lundblad, Consultant
Judith N. Nielsen, Animal Health Maintenance, Diagnosis and Eradication
Nirali M. Patel, Molecular Pathology Anatomic and Clinical Pathology
Howard M. Reisner, Immunogenetics of Blood Coagulation, Immunochemistry
Marian Rollins-Raval, Hematopathology, Flow Cytometry and Coagulation
Gary J. Smith, Prostate Cancer, Cancer Cell-Tissue Microenvironmental Interaction, Angiogenesis
Carol Weida, Cytopathology and Anatomic Pathology
Richard Tidwell

Adjunct Associate Professors

David A. Eberhard, Pathology, Scientific and Business Support for Clinical Trials
Delores Grant, Cancer Research
W. Carl Jacobs, General Pathology
Daniel J. Kenan, Nephropathology
Thomas Lightfoot, American Red Cross Blood Services
Ruth A. Lininger, Surgical Pathology, Breast Pathology
Christopher McKinney, General Pathology
Keith Nance, General Pathology
Jay S. Raval, Transfusion Medicine
William Sanders, Medical Information Technology
Nobuyuki Takahashi, Animal Models of Hypertension, Pre-eclampsia, Diabetic Nephropathy and Obesity

Adjunct Assistant Professors

Araba N. Afenyi-Annan, Transfusion Medicine
Edward Bahnson, Vascular Biology, Diabetes and Metabolic Syndrome
Paul Chastain, Patient Care, Experience, and Clinical Outcomes
Bal Dhungel, Lymphoproliferative Disorders
Aaron Hartman, Genitourinary and Nephropathology
Wendell Jones, Genomic Bioinformatics
Michal Kamionek, General Pathology
Grace Lee, Hematology
Emily Maambo, General Pathology
William Oliver, Forensic Pathology
Avani Pendse, Surgical Pathology
Ashley Rivenbark, Cancer Biology
Tamiwe Tomoka, General Pathology
Ruth Walters, Dermatopathology

Professors Emeriti

Nadia Malouf Anderson
C. Robert Bagnell Jr.
Dwight Bellinger
Stuart Bentley
Debra A. Budwit
John D. Butts
John F. Chapman Jr.
Myra L. Collins
Marila Cordeiro-Stone
Robert E. Cross
Frederic G. Dalldorf
Cora-Jean S. Edgell
James D. Folds
Donald T. Forman
Joe W. Grisham
Catherine A. Hammett-Stabler
John E. Hammond
Susan T. Lord
William W. McLendon
James R. Pick
Marjorie S. Read
Harold Roberts
Kinuko I. Suzuki
Michael Topal

PATH

Advanced Undergraduate and Graduate-level Courses

PATH 426. Biology of Blood Diseases. 3 Credits.
An introduction to the biology and pathophysiology of blood and the molecular mechanisms of some human diseases: anemias; leukemias; hemorrhagic, thrombotic, and vascular disorders; and HIV disease/AIDS. Honors version available
Requisites: Prerequisite, BIOL 205; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: BIOL 426.

PATH 426H. Biology of Blood Diseases. 3 Credits.
An introduction to the biology and pathophysiology of blood and the molecular mechanisms of some human diseases: anemias; leukemias; hemorrhagic, thrombotic, and vascular disorders; and HIV disease/AIDS.
Requisites: Prerequisite, BIOL 205; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: BIOL 426H.

PATH 462. Experimental Pathology. 1-9 Credits.
Hours, credits, and instructor to be arranged on an individual basis. Hands-on research experience in a predetermined instructor's laboratory. Students learn and apply specific techniques and participate in investigations of molecular mechanisms responsible for disease processes (pathobiology). Contact the director of graduate studies in pathology for information. May be repeated.
Grading status: Letter grade.

PATH 464. Light Microscopy. 3 Credits.
Permission of the instructor. Course focuses on practical fundamentals of light microscopy including optics, contrast mechanisms, fluorescence, laser scanning confocal microscopy, photography, and digital imaging.

Graduate-level Courses

PATH 713. Molecular and Cellular Pathophysiological Basis of Disease: Mechanisms of Disease. 3 Credits.
A graduate course on cell injury and pathogenesis of disease with emphasis on basic mechanisms at the molecular, cellular, and organismal levels. Three lecture hours with a complementary two-and-a-half-hour laboratory each week.
Requisites: Co-requisite, PATH 714L.
Grading status: Letter grade.

PATH 714L. Molecular and Cellular Pathophysiological Basis of Disease: Laboratory I. 2 Credits.
A graduate-level laboratory course on basic mechanisms of disease pathogenesis, emphasizing cell and tissue-based examples of major disease mechanisms.
Requisites: Pre- or corequisite, PATH 713.
Grading status: Letter grade.

PATH 715. Molecular and Cellular Pathophysiological Basis of Disease: Systemic Pathology. 3 Credits.
A graduate-level laboratory course on systemic pathology, emphasizing diseases of major organ systems. A follow-up to PATH 713/714L. Three lecture hours (three credits) with a complementary two-and-a-half-hour laboratory (two credits) each week.
Requisites: Co-requisite, PATH 716L.
Grading status: Letter grade.

PATH 716L. Molecular and Cellular Pathophysiological Basis of Disease: Laboratory II. 2 Credits.
A graduate-level laboratory course on mechanisms of systemic disease pathogenesis, emphasizing cell and tissue-based examples of diseases of the major organ systems.
Requisites: Pre- or corequisite, PATH 715.
Grading status: Letter grade.

PATH 723. Practical Considerations for Translational Research. 2 Credits.
Permission of the instructor. A multi-disciplinary course providing students principles involved in translating basic science into clinically applicable diagnostics and therapies to improve human disease outcomes. The course is focused on bioinformatics, bioethics, trial design, FDA approval, and commercialization of laboratory diagnostics.
Grading status: Letter grade.

PATH 725. Cancer Pathobiology. 3 Credits.
Permission of the instructor. This course examines pathobiological features of cancer. An interdisciplinary approach draws from epidemiology, genetics, molecular biology, and clinical medicine to investigate cancer etiology, pathogenesis, prevention, and treatment.
Grading status: Letter grade.

PATH 726. Human Environmental Disease. 1-3 Credits.
This course will study human disease processes that are induced or exacerbated by our environment. Environmental disease stressors include solar radiation, air and water pollution, bioreactive substances in foods, pesticides, metals, dusts, particles, and allergens. Lectures will emphasize epidemiology, mechanisms of toxicity, and human disease pathogenesis.
Grading status: Letter grade.

PATH 766. Current Topics in Cardiovascular Biology. 3 Credits.
Permission of the instructor. Second-year graduate students only. This manuscript-based course will emphasize recent advances in heart and blood vessel development, the molecular mechanisms that regulate cardiovascular cell function, and current methodologies in the cardiovascular field. It will be team taught by members of UNC's McAllister Heart Institute.
Grading status: Letter grade.

PATH 767. Molecular and Cellular Biology of Cardiovascular Diseases. 3 Credits.
Second year graduate students or permission of the instructor. Course reviews the molecular, cellular, and organismal pathogenesis of cardiovascular disease. It is team-taught by faculty with topic expertise and stresses primary literature and current methodologies. May be taken as a companion to PATH766 or on its own.
Grading status: Letter grade.

PATH 792. Seminar in Carcinogenesis. 2 Credits.
Permission of the instructor. Survey of classical and current literature on selected critical issues in carcinogenesis. Students discuss experimental methods and observations as well as theories and generalizations. Two seminar hours a week.
Grading status: Letter grade
Same as: TOXC 792.

PATH 801. Cell Cycle Regulation and Cancer. 3 Credits.
This journal club-style discussion course will focus on molecular events that regulate normal cell cycle progression, and on how deregulation of the cell cycle leads to cancer. Classes will follow the development of the cell cycle field chronologically, learning how current concepts and paradigms have evolved through scientific inquiry.
Grading status: Letter grade
Same as: GNET 801.

PATH 890. Special Topics in Pathology. 1-3 Credits.
A study in special fields under the direction of the faculty. Offered as needed for presenting material not normally available.
Repeat rules: May be repeated for credit. 6 total credits. 3 total completions.
Grading status: Letter grade.

PATH 900. Research in Pathology. 2-12 Credits.
Permission of the department. This is a research course in which advanced students in pathology carry on investigations on mechanisms of disease. Six or more laboratory hours a week, to be arranged. May be repeated.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PATH 920. Seminar in Interdisciplinary Vascular Biology. 1 Credit.
Permission of the instructor. Participants in the Interdisciplinary Vascular Biology Training Program only. Students will be required to present their thesis work as a formal seminar, give an introductory lecture to introduce their project (in cooperation with their thesis advisor), and to attend and discuss the seminars of other students.
Repeat rules: May be repeated for credit. 6 total credits. 6 total completions.
Grading status: Letter grade.

PATH 993. Master's Research and Thesis. 3 Credits.
May be repeated.
Repeat rules: May be repeated for credit.

PATH 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF PHARMACOLOGY (GRAD)

Contact Information

Department of Pharmacology
Visit Program Website (http://www.med.unc.edu/pharm)

Henrik Dohlman, Chair

The Department of Pharmacology offers a program of study that leads to the degree of doctor of philosophy in pharmacology. The curriculum is individualized in recognition of the diverse backgrounds and interests of students and the broad scope of the discipline of pharmacology.

The department offers a variety of research areas including

1. Receptors and signal transduction
2. Ion channels
3. Neuropharmacology
4. Cancer pharmacology
5. Gene therapy
6. Pharmacology of alcohol and drugs of abuse

The student is expected to begin independent research early in his or her training and to participate in an intensive program of research seminars. Close personal contact between preceptor and trainee is encouraged.

Research Facilities

Laboratory facilities and a variety of research equipment are available in the department, which is located primarily in the Genetic Medicine Building, where it occupies approximately 30,000 square feet (exclusive of classrooms and animal facilities). In addition, several faculty members are located in the Lineberger Comprehensive Cancer Center, the Thurston Bowles Alcohol Center, and the Neurosciences Building.

Assistantships and Other Student Aid

Financial assistance is provided to all students. The stipend for the 2018–2019 fiscal year will be $30,000 per year. In addition, tuition, fees, and health insurance coverage are provided.

Requirements for Admission

All students in the basic science departments in the Medical School and the biological sciences divisions in biology and chemistry enter graduate school through the Biological and Biomedical Sciences Program (http://bbsp.unc.edu). During the first year students take courses and complete three rotations in laboratories from any of the participating departments or curricula.

After identifying a research mentor, if that faculty member is affiliated with the Pharmacology Department (http://www.med.unc.edu/pharm/people/primaryfaculty), students can choose to join the pharmacology graduate program. Once in the program, students complete required coursework and qualifying examinations, propose a research topic, choose a dissertation committee, and engage in dissertation research. The anticipated duration of training is five years.

The pharmacology graduate program is dedicated to the training of outstanding scientists in the pharmacological sciences. An outstanding graduate program is a high priority of the department, and the training faculty participate fully at all levels. The department has the highest level of NIH funding of all pharmacology departments and a great diversity of research areas is available to trainees. These areas include cell surface receptors, G proteins, protein kinases, and signal transduction mechanisms; neuropharmacology; nucleic acids, cancer, and antimicrobial pharmacology; and experimental therapeutics. Cell and molecular approaches are particularly strong, but systems-level research such as behavioral pharmacology and analysis of knock-in and knock-out mice is also well-represented. Excellent physical facilities are available for all research areas.

Students completing the training program will have acquired basic knowledge of pharmacology and related fields, in-depth knowledge in their dissertation research area, the ability to evaluate scientific literature, mastery of a variety of laboratory procedures, skill in planning and executing an important research project in pharmacology, and the ability to communicate results, analysis, and interpretation. These skills provide a sound basis for successful scientific careers in academia, government, or industry.

To apply to BBSP, students must use The Graduate School's online application form (http://gradschool.unc.edu/admissions). They should read carefully the information for domestic or international applicants before beginning the application. For Question 2 of the application, applicants should scroll down to School of Medicine and select "Biological and Biomedical Sciences" from the dropdown list.

The following materials are required for an application to be considered complete:

1. Nonrefundable application fee (the department cannot review the application until this is paid)
2. Copies of each of the student's transcripts
3. Letters of recommendation (submit online)
4. Personal statement (submit online)
5. GRE scores (must be less than five years old; UNC–Chapel Hill institution code is 5816)
6. TOEFL score (must be less than two years old and is necessary only if the student is an international applicant who does not have an undergraduate degree from a United States university)

For Graduate School information and submission of application materials, please consult the Graduate School Admissions Office Web site (http://gradschool.unc.edu/admissions).

For program information and submission of application materials, prospective applicants may write to the following address:

BBSP Admissions
130 Mason Farm Road
1125 Bioinformatics Bldg.
CB#7108
University of North Carolina
Chapel Hill, NC 27599-7108
Telephone: (919) 843-6960
Email: bbsp@unc.edu

The basic course requirements for the Ph.D. degree include introductory and advanced courses in pharmacology and related programs in accord with the principal interest of the students in molecular pharmacology, neuropharmacology, or toxicology. In addition, in order to satisfy the requirements of the department and The Graduate School, the student must pass written and oral doctoral examinations, write a dissertation

based on original research, and submit to a final oral examination. Under special circumstances the department will offer a program leading to the M.S. degree. The requirements are appropriate coursework, a written comprehensive examination, a thesis based on original research, and a final oral examination.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Nancy Allbritton (136), Signaling in Single Cells and Microfabricated Systems for Cellular Analysis[1]
James Bear, Cell Motility, Migration, and Cancer Metastasis[1]
Frank C. Church (107), Proteases and Their Inhibitors Involved in Regulating Thrombosis and Tumor Cell Invasion[1]
Jean Cook (144) Cell Cycle Control in Human Cells
Adrienne D. Cox (90), Ras Family Oncogenes, Lipid Modification and Protein Function[1]
Fulton T. Crews (88), Excitotoxicity, Gene Delivery, Neuroprogenetor Stem Cells and Addiction
Channing Der (74), Ras Protein Superfamily, Signal Transduction and Oncogenesis
Joseph Desimone (137), Polymer Synthesis, Liquid and Supercritical CO_2 Processing, Gene Therapy and Drug Delivery[1]
H.G. Dohlman (127), Receptor and Signal Transduction: Mechanisms of Drug Desensitization[1]
H. Shelton Earp (63), Growth Regulation, Growth Factor and Protein Kinases[1]
Timothy Elston (129), Mathematical Modeling of G-Protein and MAP Kinase Signaling
Lee M. Graves (89), Kinome proteomics and Signal Transduction, Cancer Drug Resistance
Klaus Hahn (126), Development of Fluorophores for Site-Specific Protein Labeling, Live Cell Biosensors and Their Biological Applications, Motility, Apoptosis, and Crosstalk in Signaling
Clyde Hodge (123), Molecular Mechanisms Mediating the Reinforcing/Pleasurable Subjective Effects of Alcohol and Other Drugs[1]
Gary L. Johnson (124), Receptors/G-Proteins, Defining the Signal Relay Systems Initiated by Various Cellular Stimuli (Including Cytokines), Growth Factors, Antigens, and Drugs Used to Treat Human Disease
Alan Jones (138), Heterotrimeric G-Protein Signaling in Model Systems[1]
Rudolph L. Juliano (62), Membrane Biochemistry of Cell Interactions, Drug Delivery Systems[1]
Terrance Kenakin, Drug Discovery and Development for Seven Transmembrane Receptors, Protein Allosteric Mechanisms/Signal Efficacy
David Lawrence (139), Chemical Biology of Signal Transduction[1]
Nigel Mackman (150), Role of Tissue Factor in Hemostasis, Thrombosis and Ischemia-Reperfusion (I/R), Injury[1]
Leslie Morrow (105), Molecular Neuropharmacology of GABA Receptors and Alcohol
Robert A. Nicholas (68), G-Protein-Coupled P2Y Receptors, Mechanisms of Antibiotic Resistance[1]
Leslie V. Parise (70), Adhesion Receptors and Signal Transduction in Platelets, Sickle Cell Disease, and Cancer[1]
Bryan Roth (130), Regulation of Signaling and Trafficking, Drug Discovery
Janet Rubin (142), Mechanical and Hormonal Control of Bone Remodeling, Mesenchymal Stem Cell Differentiation, and Osteoporosis[1]
R. Jude Samulski (77), Development of Efficient Viral Vectors for Gene Delivery into Eukaryotic Genes
John Sondek (100), X-Ray Crystallography and Transmembrane Signaling
Juan Song (147), Adult Neurogenesis Function and Regulation
Yanping Zhang (143), Molecular Basis of Cancer[1]

Associate Professors

Michael Emanuele (148), Cell Cycle, Mitosis, Protein Stability, Ubiquitin, Cancer, Genetics, Cell Biology
J. Alex Duncan (145), Inflammation and Immune Response and Host Pathogen Interactions[1]
Shawn Gomez (149), Computational Biology, Systems Biology, Cancer[1]
Thomas Kash (134), Neurophysiological Alterations Underlying Dysregulated Emotional Behavior
Jen Jen Yeh (151), Gene Expression Profiling of Human Tumors; Study, Development, and Evaluation of Novel Therapeutics; Pancreatic and Colorectal Cancer[1]
Qisheng Zhang (153), Lipid Signaling in Development and Disease[1]
C. Ryan Miller, Genomics of Glioma
Ben Major, Proteomics, Mass Spectrometry, Signal Transduction
William Kim, Cancer Genetics

Assistant Professors

Nicholas G. Brown, Cell Cycle, Mitosis, Ubiquitin Ligases, Anaphase Promoting Complex
J. Mauro Calabrese (146), Epigenetic Control by Long Noncoding RNAs, Genomics, Stem Cells, Cancer, Human Genetic Disorders
Melissa Herman, How Structural Changes of Inhibitory Neuronal Networks Contribute to Addiction and Stress
Brian Jensen (154), Transthoracic and Transesophageal Echocardiography, Heart Failure, Myocardial Biology, Adrenergic Receptor Biology[1]
Wesley R. Legant, Microscopy, 3D Image Analysis, Biomaterials, Cell Migration, Cancer Metastasis, Tissue Engineering
Zoe McElligott, Substance Abuse, Anxiety and Depression
Jonathan C. Schisler, Cardiovascular Genomics, Proteinopathies, and Cellular Metabolism in Neuronal and Cardiovascular Disease
Qing Zhang, Hypoxia, VHL Signaling in Cancer

Adjunct Professors

Cam Patterson (115), Angiogenesis, Vascular Biology Endothelium, Atherosclerosis[1]
James W. Putney (84), Second Messenger Signaling
Robert L. Rosenberg (69), Regulation of Ion Channels
David Siderovski (111), Regulator of G-Protein Signaling (RGS), Family of Proteins

Adjunct Associate Professors

Kenneth S. Korach (85), Biochemistry and Biology of Steroid Hormone Receptors
Sommath Mukhopadhyay (143), Cannabinoid and G-Protein Coupled Receptor-Mediated Regulation of Neurogenesis and Angiogenesis

Professors Emeriti

Kenneth H. Dudley
Barry Goz
T. Kendall Harden
Gene A. Scarborough

[1] *joint faculty members*

PHCO

Advanced Undergraduate and Graduate-level Courses

PHCO 643. Cell Structure, Function, and Growth Control I. 3 Credits.
Comprehensive introduction to cell structure, function, and transformation.
Requisites: Prerequisite, undergraduate cell biology or biochemistry or permission of the instructor.
Grading status: Letter grade
Same as: CBIO 643, BIOC 643, PHYI 643.

Graduate-level Courses

PHCO 701. Introduction to Molecular Pharmacology. 3 Credits.
Permission of the instructor. A first-year pharmacology course outlining the basics of molecular pharmacology, including molecular biology, drug and receptor interactions, receptors and ion channels, regulation of second messengers, and drug metabolism. Three lecture hours a week.
Grading status: Letter grade.

PHCO 702. Principles of Pharmacology and Physiology. 3 Credits.
Introduces students to the major areas of pharmacology and physiology and serves as a basis for more advanced courses. Three lecture hours a week.
Requisites: Prerequisite, CHEM 430; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: TOXC 702.

PHCO 705. Behavioral Pharmacology. 3 Credits.
Basic principles of pharmacology and behavior analysis are considered in relation to drugs that affect the central nervous system.
Requisites: Prerequisite, PSYC 404; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: PSYC 705, NBIO 705.

PHCO 707. Advanced Toxicology. 3 Credits.
Cellular and physiological basis of toxicity of environmental chemicals, with emphasis on inhalation toxicology, developmental toxicology, immunotoxicology, radiation toxicology, renal toxicology, and neurotoxicology. Three lecture hours per week.
Requisites: Prerequisite, PHCO 702; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: TOXC 707, ENVR 707.

PHCO 710. Cell Membranes. 2 Credits.

PHCO 715. The Molecular Pharmacology of Cancer. 2 Credits.
Required preparation, advanced graduate or advanced undergraduate courses in biochemistry and molecular biology. This course deals with the molecular and cellular basis of anticancer and antiviral chemotherapy, with emphasis on novel approaches including immunotherapy, antisense oligonucleotides, and gene therapy. The course includes faculty lectures and student presentations.
Grading status: Letter grade.

PHCO 721. Seminar Courses in Pharmacology. 1-3 Credits.
This is a series of seminar courses dealing with advanced topics in modern molecular pharmacology based mainly on discussion of current literature.
Grading status: Letter grade.

PHCO 722. Cellular and Molecular Neurobiology I. 2-6 Credits.
Lecture/discussion course on the physiology, pharmacology, biochemistry, and molecular biology of the nervous system. Topics include function and structure of ion channels, neurotransmitter biosynthesis and release mechanisms, neurotransmitter receptors, and intracellular signaling pathways.
Grading status: Letter grade.

PHCO 722A. Cellular and Molecular Neurobiology: Introduction and Electrical Signaling. 2 Credits.
Permission of the department. This course explores the experimental and theoretical function of the nervous system. Typically, the first hour is fundamental material presentation and the second hour may be a presentation led by the students. Topics covered include: cellular diversity in the CNS, gross brain anatomy, human and rodent brain imaging, neuromolecular genetics, behavioral methods, membrane potentials/resistance/capacitance, ion channel structure, electrophysiology and propagation of electrical signals in neurons. Basic undergraduate biology, chemistry, physics and intro calculus is assumed.
Grading status: Letter grade
Same as: NBIO 722A, BIOC 722A.

PHCO 722B. Cellular and Molecular Neurobiology: Postsynaptic Mechanisms-Receptors. 2 Credits.
Permission of the department. Consideration of membrane receptor molecules activated by neurotransmitters in the nervous system with emphasis on ligand binding behavior and molecular and functional properties of different classes of receptors. Course meets for four weeks with six lecture hours per week.
Grading status: Letter grade
Same as: NBIO 722B, BIOC 722B.

PHCO 724. Ras Superfamily Proteins and Signal Transduction. 2 Credits.
Seminar/discussion course covering recent advances in the role of these proteins in signaling and growth.
Grading status: Letter grade.

PHCO 725. Signal Transduction. 2 Credits.
Seminar/discussion course on molecular aspects of the receptors, G-proteins, effector proteins, kinases, and phosphatases that mediate hormone, neurotransmitter, growth factor, and sensory signaling.
Grading status: Letter grade
Same as: BIOC 725.

PHCO 726. Adhesion Receptors and Signaling in Cancer and CV Disease. 2 Credits.
Examines the growing number of families of cell adhesion receptors and their role in biological processes including signal transduction, control of gene expression, hemostasis, cancer, neuronal development, immunobiology, and embryologic development.
Grading status: Letter grade.

PHCO 727. Structure and Function of Ion Channels. 2 Credits.
Seminar/discussion course on the physiology, pharmacology, biochemistry, and molecular biology of ion channel proteins.
Grading status: Letter grade.

PHCO 728. Neuropharmacology of Alcohol and Substance Abuse. 3 Credits.
A lecture/discussion course on the biological bases of alcohol and substance abuse.
Grading status: Letter grade.

PHCO 729. Gene Therapy: Medicine for the 21st Century. 2 Credits.
A seminar/discussion course on recent advances in targeted gene delivery and gene therapy.
Grading status: Letter grade.

PHCO 730. Seminar in Recent Advances in Pharmacology. 1 Credit.
Students meet as a group with faculty members to develop skills in critical reading and to summarize and discuss selected aspects of current pharmacological literature. Two hours a week. Fall and spring.
Grading status: Letter grade.

PHCO 731. Recent Advances in the Pharmacological Sciences. 1 Credit.
This graduate-level course encompasses both seminars presented by distinguished faculty from UNC, Duke, and other high-level research institutions, and seminars presented by students in the Pharmacological Sciences Training Program (PSTP) to other PSTP students and faculty. Students are required to attend at least 80% of these seminars each semester.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PHCO 732. Grant Writing. 2 Credits.
A discussion course covering the elements of successful grant proposals and scientific ethics.
Requisites: Prerequisite, PHCO 701; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PHCO 733. Drug Discovery and Development. 2 Credits.
A seminar/discussion course on the research, development, and regulatory processes involved in bringing new drugs to clinical use.
Grading status: Letter grade.

PHCO 734. Pain and Analgesia. 2 Credits.
A lecture/discussion course on pain transmission and pain measurement. The neuropharmacological basis of pain modulation will be discussed.
Grading status: Letter grade.

PHCO 735. Discovery Biology and Pharmacogenomics. 2 Credits.
Lecture/discussion course covering a variety of aspects of new biological and computational technologies. The course is predominantly in a lecture format with computer-based and literature assignments.
Grading status: Letter grade.

PHCO 736. Protein Kinases as Targets for Novel Pharmacological Inhibitors. 2 Credits.
A seminar/discussion course to evaluate the use of small molecule inhibitors of protein kinases from a structural and signal transduction perspective.
Grading status: Letter grade.

PHCO 737. Target-Based Drug Discovery and Cancer Treatment. 2 Credits.
A lecture/discussion course that emphasizes preclinical and clinical studies for the development of anti-cancer drugs that target signal transduction. Topics include: target identification and validation, drug discovery, the process of government approval for clinical trials, design of clinical trials, and new genetic-based technologies to foster drug development.
Grading status: Letter grade.

PHCO 738. Nanomedicine. 2 Credits.
This course offers an introduction to the nascent interdisciplinary field of nanomedicine for students with physical/biological science backgrounds; course will be based on student led discussions of current literature.
Requisites: Prerequisite, completion of undergraduate major in physical or biological science or permission of the instructor.
Grading status: Letter grade.

PHCO 739. Reprogramming of Somatic and Stem Cells and Its Applications in Pharmacology. 2 Credits.
The objective of this new elective is to provide graduate students with an overview of stem cell biology with a unique emphasis on the applications of stem cells in pharmacology, particularly in areas of cancer and tissue regeneration.
Grading status: Letter grade.

PHCO 740. Contemporary Topics in Cell Signaling: Phosphorylation Control. 1 Credit.
Required preparation, coursework in biochemistry, pharmacology and/or cell & molecular biology. Permission of the instructor. This graduate-level course is an in-depth analysis of how protein kinases and protein phosphorylation regulates key aspects of cell signaling. This class is one of the "Contemporary Topics in Cell Signaling" modules.
Grading status: Letter grade.

PHCO 741. Contemporary Topics in Cell Signaling: GTPases. 1 Credit.
Required preparation, coursework in biochemistry, pharmacology, and/or cell & molecular biology. Permission of the instructor. This graduate-level course conveys principles of signal transduction controlled by GTPases and emphasizes in-depth discussion of current literature and unanswered questions. This class is one of the "Contemporary Topics in Cell Signaling" modules.
Grading status: Letter grade.

PHCO 742. Contemporary Topics in Cell Signaling: Cell Cycle Control. 1 Credit.
Permission of the instructor. Required preparation, coursework in biochemistry and/or cell & molecular biology. This graduate-level course conveys principles of eukaryotic cell proliferation control emphasizing in-depth discussion of current literature and unanswered questions. This class is one of the Contemporary Topics in Cell Signaling modules.
Grading status: Letter grade.

PHCO 743. Contemporary Topics in Cell Signaling: Signaling Networks. 1 Credit.
Acquire the scientific vocabulary of the signaling network field. Master key concepts from mathematical characterization of signaling circuits. Develop and apply critical analysis skills.
Grading status: Letter grade
Same as: BIOC 743.

PHCO 744. Topics on Stem Cells and Development. 2 Credits.
Required preparation, coursework in genetics, cell biology, and molecular biology. Permission of the instructor. Course addresses key issues in developmental biology focused on the role of stem cells and emphasizes in-depth discussion of current literature and unanswered questions. One of the Contemporary Topics in Cell Signaling modules.
Grading status: Letter grade
Same as: BIOC 744.

PHCO 745. Intercellular Signaling in Development and Disease. 1 Credit.
This graduate-level course concentrates on up-to-date views of intercellular signal processing, with emphasis on signal transduction mechanisms as they relate to cellular/physiological responses in both normal development and disease. Signaling mechanisms that will be discussed include autocrine, paracrine, juxtacrine signaling and cell-matrix interactions.
Grading status: Letter grade
Same as: BIOS 745.

PHCO 746. Introduction to Computer Vision Tools for Modern Microscopy. 1 Credit.
This course will introduce computer vision methods for cell biology. Each topic will be motivated with an explanation of a computational challenge, followed by a discussion of available techniques to address the need and practical examples for how to apply the techniques.
Grading status: Letter grade.

PHCO 747. Biological Concepts. 1.5 Credit.
Overview of structures and biological determinants of conditions and diseases of the oral cavity. Both growth and development and pathophysiology will be introduced in the context of three areas of oral biology: biology of extracellular matrices, host-pathogens interactions, and orofacial neurobiology.
Grading status: Letter grade
Same as: OCBM 732, NBIO 732.

PHCO 748. Translational Pain Medicine. 1.5 Credit.
This is a clinician-taught course that advances students' understanding of chronic pain (e.g., head/face pain, pelvic pain, back pain, cancer pain, surgical pain) in both the classroom and the clinic.
Requisites: Prerequisite, OBIO 732; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: OCBM 733.

PHCO 749. Practical RNA-Seq. 2 Credits.
This course is designed to familiarize students with everything needed to run an RNA-Seq experiment. There will be minimal emphasis on theory and heavy focus on practical aspects. There are no formal prerequisites required for this course and no prior experience with UNIX or the command line interface is expected.
Grading status: Letter grade
Same as: GNET 749.

PHCO 900. Special Pharmacology Research. 3-6 Credits.

PHCO 901. Research in Pharmacology. 1-15 Credits.
Permission of the department.
Grading status: Letter grade.

PHCO 951. Research in Neurobiology. 3-12 Credits.
Permission of the department. Research in various aspects of neurobiology. Six to 24 hours a week.
Grading status: Letter grade
Same as: NBIO 951, BIOL 951.

PHCO 989. Special Pharmacology Research. 3-6 Credits.

PHCO 993. Master's Research and Thesis. 3 Credits.
Permission of the department.
Repeat rules: May be repeated for credit.

PHCO 994. Doctoral Research and Dissertation. 3 Credits.
Permission of the department.
Repeat rules: May be repeated for credit.

UNC ESHELMAN SCHOOL OF PHARMACY (GRAD)

Contact Information

UNC Eshelman School of Pharmacy
Visit Program Website (http://pharmacy.unc.edu)

Dhiren Thakker, Interim Dean

The UNC Eshelman School of Pharmacy offers graduate curricula leading to the master of science in pharmaceutical sciences with a specialization in health-system pharmacy administration and the doctor of philosophy in pharmaceutical sciences with concentrations in one of four research areas: chemical biology and medicinal chemistry; pharmacoengineering and molecular pharmaceutics; pharmacotherapy and experimental therapeutics; or pharmaceutical outcomes and policy.

Instruction emphasizes contemporary research methods, study design, and results and is delivered in the form of small group lectures/discussions, group activities and recitations, and seminars combined with intensive laboratory-based research. The excellent rapport that exists between schools, departments, institutes, and centers within the University facilitates interdisciplinary collaborative research by graduate students and faculty. The graduate degree programs also benefit from faculty affiliations with GlaxoSmithKline, Inc., the Research Triangle Institute, the Hamner Institutes for Health Sciences, Duke University, the Wake Forest University School of Medicine, and many other organizations in the Research Triangle Park area. The UNC Eshelman School of Pharmacy is housed in Beard Hall, Kerr Hall, Marsico Hall, and the Genetic Medicine Building, which are located on the health sciences campus together with the Schools of Dentistry, Medicine, and Nursing and the Gillings School of Global Public Health. The Health Sciences Library has an outstanding collection of books and journals as well as computer and support services. Library and laboratory resources residing in other University departments are also available for use by students and faculty.

Requirements for Admission to the Ph.D. Program

Applicants who have completed a standard collegiate curriculum in pharmacy, chemistry, biochemistry, biology, engineering, or in an allied field in the University, or in other universities or colleges having curricula acceptable to UNC–Chapel Hill's Graduate School, are eligible for admission to the graduate program in pharmaceutical sciences. Applications for admission must be supported by scores on the Graduate Record Examination, letters of recommendation, official transcripts, and a statement of personal goals as they relate to graduate study at the UNC Eshelman School of Pharmacy.

The Graduate School online application (http://gradschool.unc.edu/admissions)is the standard means of applying for admission. Inquiries concerning admission to programs in the pharmaceutical sciences may be directed to the Office of Curricular and Student Affairs, CB# 7566, 109 Beard Hall, Chapel Hill, NC 27599-7566.

Graduate Assistantships and Fellowships in the UNC Eshelman School of Pharmacy

Research assistantships in the UNC Eshelman School of Pharmacy provide a competitive stipend, health insurance, tuition, and fees for 12 months' service. All awards are made on a competitive basis with consideration given to the applicant's academic record and research experience. Information concerning these assistantships, fellowships, and traineeships may be obtained by writing directly to the Office of Research and Graduate Education at the UNC Eshelman School of Pharmacy.

Chemical Biology and Medicinal Chemistry

Chemical biology and medicinal chemistry are multidisciplinary fields that integrate organic chemistry, biochemistry, molecular biology, structural biology, pharmacology, and physiology. The research in the division applies and extends the basic concepts of chemistry, biochemistry, and pharmacology to the investigation of biomedical problems. General areas of study include structure-activity relationships, drug-receptor interactions, synthetic drug design, and target discovery and validation. Specific focus areas include cancer chemotherapy, computer-aided drug design, enzymology, glycobiology, molecular modeling, natural products, neurochemistry, parasitology, and structural biology.

A Ph.D. is offered with a concentration in chemical biology and medicinal chemistry.

Pharmacoengineering and Molecular Pharmaceutics

Pharmacoengineering and molecular pharmaceutics represents interdisciplinary specialties encompassing a range of scientific endeavors, including

1. The design, fabrication, evaluation, use of, and delivery strategies for dosage forms
2. Elucidation of the behavior of pharmacologic agents in biologic systems
3. Determination of the ability of pharmacologic agents to reach the relevant site of biologic effect
4. Determination of the time course of biologic activity

These areas of specialization represent critical steps in the development of new therapeutic agents, the evaluation of new and existing drugs, and the optimal clinical use of pharmacologic agents.

Students in the Division of Pharmacoengineering and Molecular Pharmaceutics are required to participate in a common core of entry-level graduate courses. This core provides a broad perspective of the pharmaceutical sciences as well as an appreciation for how different subdisciplines interact. Many dissertation projects are collaborative in nature and rely upon interactions with faculty in other divisions of the UNC Eshelman School of Pharmacy, as well as with colleagues in the UNC School of Medicine, the Department of Chemistry, or at pharmaceutical companies or institutions located in the Research Triangle Park area.

A Ph.D. is offered with a concentration in pharmacoengineering and molecular pharmaceutics.

Pharmaceutical Outcomes and Policy

The Division of Pharmaceutical Outcomes and Policy offers a Ph.D. program in pharmaceutical sciences emphasizing an interdisciplinary approach to addressing issues relevant to medication use at the patient, provider, community, and societal levels. Faculty research

interests and course offerings reflect this interdisciplinary orientation. Students develop knowledge and skills that enable them to conduct high quality research directed at improving the use and cost effectiveness of medications, technology, and services. Education and research in the division draws heavily upon expertise in numerous fields such as health services research, health policy, health communication, health behavior and behavior change, epidemiology, and psychometrics. Areas of faculty and student research include communication and decision making, comparative effectiveness of medications and pharmacy practice models, medication adherence and self-management, health disparities, health literacy, patient reported outcomes assessment, pharmaceutical policy analysis, and policy and ethical issues related to pharmacogenomics.

A Ph.D. is offered with a concentration in pharmaceutical outcomes and policy.

Pharmacotherapy and Experimental Therapeutics

The Division of Pharmacotherapy and Experimental Therapeutics offers a Ph.D. program in the pharmaceutical sciences with a focus on translational research that integrates biomedical and pharmaceutical sciences in both laboratory-based models and in humans. The goal of the program is to develop scientists who are prepared to generate and disseminate new knowledge in pharmacotherapy and accelerate its application to improve patient care. Graduate students engage in clinical experiences throughout the program that are designed to complement each student's research interests while also facilitating their development as translational scientists. Areas of graduate coursework and research include drug metabolism and transport, pharmacokinetics/pharmacodynamics/pharmacometrics, pharmacogenomics, clinical research, drug development, experimental therapeutics, and mechanisms of drug toxicity. Therapeutic and research areas of particular strength include cardiovascular disease, infectious disease/HIV, oncology/hematology, hepatology/gastroenterology/transplant, and pulmonary disease.

A Ph.D. is offered with a concentration in pharmacotherapy and experimental therapeutics.

Master of Science in Pharmaceutical Sciences

The Division of Practice Advancement and Clinical Education (PACE) offers the master of science in pharmaceutical sciences with a specialization in health system pharmacy with a goal of preparing pharmacists for leadership positions in health care. To accomplish this goal, the program will provide students with the knowledge, skills, and experience necessary to assume a variety of roles and responsibilities. Our graduates will serve as vibrant, committed professionals with a focus on improving patients' health, health care delivery, and the profession of pharmacy. This will occur through both didactic education and experiential opportunities in class and in the workplace.

P*Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.*

Distinguished Professors

Jeffery Aubé, Synthetic Organic/Medicinal Chemistry, Neuroscience, Infectious Disease, Cytochrome P450 Biochemistry

Kim L.R. Brouwer (62), Hepatobiliary Drug Disposition, Drug Transport, Prediction of Drug Interactions and Hepatotoxicity, Clinical Pharmacokinetics and Quantitative Systems Pharmacology

Stephen Frye, Drug Design and Discovery, Chemical Biology of Chromatin Regulation

Angela Kashuba (114), Clinical Pharmacology of Antiretroviral Agents in HIV Treatment, Prediction of Drug-Drug and Drug-Cytokine Interactions and Adverse Effects, Role of Sex and Ethnicity in Drug Disposition

Leaf Huang (121), Gene Therapy, Targeted Gene/Drug Delivery in Tumor Microenvironment

Michael Jay (137), Pharmaceutical Formulation Development, Nuclear Sciences

Angela Kashuba (114), Clinical Pharmacology of Antiretroviral Agents in HIV Treatment, Prevention, and Cure; Preclinical Pharmacology of Antiretroviral Agents, Tissue Pharmacokinetics/Pharmacodynamics, Mass Spectroscopy ImagingRole of Sex and Ethnicity in Drug Disposition

David Lawrence (133), Application of Chemical Tools to Biological Questions: Enzyme Sensors; Light-Activated Inhibitors, Sensors, and Signaling Proteins; Light-Induced Gene Expression; Chemical Genomics

Kuo-Hsiung Lee (13), Medicinal Chemistry of Bioactive Natural Products and Synthetic Analogs including Antitumor, Anti-Aids, Antimalarial, Antihepatic, Anti-Inflammatory, Anti-Arthritis, and Antiviral Agents; Antifungal Antibiotics; Insect Antifeedants; Chinese Herbal Medicine

Weili Lin, Cerebral Ischemia, Human Brain Development, PET, MR

Jian Liu (108), Carbohydrate Biochemistry, Structural and Functional Relationships of Heparan Sulfate

Betsy L. Sleath (91), Provider-Patient Communication about Medications, Child and Adolescent Health, Health Disparities, Improving Adherence to Medication Regimens

Dhiren R. Thakker (87), Mechanisms of Drug Transport, Pro-Drug Strategies for Enhanced and Targeted Drug Delivery, Disposition of Macromolecules (e.g., Genes)

Alexander Tropsha (81), Molecular Modeling, Computer-Assisted Drug Design, Molecular Dynamics of Proteins, Protein Folding

Xiao Xiao (126), Gene Therapy for Muscular Dystrophy and Other Genetic Diseases

Professor of the Practice

Jerry Heneghan, Practice Advancement and Clinical Education

Professors

J. Herbert Patterson (47), Individualized Pharmacotherapy of Heart Failure, Precision Dosing

Robert A. Blouin, Effects of Infectious Disease and Trauma on Altered Physiologic States (i.e., Aging and Obesity) and the Expression and Regulation of Drug Metabolizing Enzymes

Alexander Kabanov, Polymer-Based Drug, Gene, and Protein Delivery Systems and Novel Therapeutics for Cancer and Neurodegenerative and Neurodevelopmental Diseases

Jennifer Elston Lafata, Cancer Care Delivery; Quality Improvement; Patient-Provider Communication and Decision Making; Medication Adherence

Andrew Lee (111), Structural Biology, NMR Spectroscopy, Protein Dynamics, Biophysical Dissection of Proteins and Protein-Ligand Interactions

Paul Watkins, Clinical Pharmacology, Drug-Induced Liver Injury

Associate Professors

Kristy Ainslie, Formulation of Vaccines and Drug Delivery Treatments for Immune Modulation to Treat and Prevent Infectious and Other Diseases

Albert Bowers, Drug Discovery, Natural Products and Synthetic Biology
Gang Fang (84), Pharmacoepidemiology, Medication Adherence, Evaluation of Treatment Utilization and Outcomes in Populations, Comparative Treatment Effects Research, Patient-Centered Outcomes, Health Disparities
Shawn Hingtgen, Personalized Cell-Based Therapies for Cancer, Developing Novel Polymer Implant Strategies to Treat Surgically Resected Brain Cancer
Federico Innocenti, Clinical Pharmacology–Oncology/ Pharmacogenomics
Michael B. Jarstfer (112), Chemical Biology to Study Social Behavior and Telomere Biology
Sam Lai, Mucosal Immunity, Antibody Engineering, Antibody Response to Nanomaterials, Targeted Drug Delivery, Bacteriophage Engineering, Vaccines
Craig R. Lee (128), Cardiovascular Biology, Genomics and Biomarkers, Eicosanoid Metabolism, Inflammation
Rihe Liu (113), Proteomics and Functional Genomics
Mary T. Roth-McClurg (125), Medication Management in Primary Care, Clinical Pharmacists and the Medical Home, Medication Management and Medical Home, the Quality of Medication Use and Drug Administration
Wayne Pittman (30), Hypertension, Clinical Pharmacokinetics, Cardiology and Drug Administration
Scott Singleton (116), Bio-Organic and Biophysical Chemical Investigations of the Mechanisms DNA Repair, Directed Evolution of Novel Enzymes, Development of Alternate Strategies for Targeting Drug-Resistant Pathogenic Microorganisms
Kathleen Thomas, Access to Care, Underserved Populations, Mental Health
Carolyn Thorpe, Diabetes, Cognitive Impairment, Systemic Vasculitis, Hypertension, Dementia, Rheumatoid Arthritis
Joshua Thorpe, Access to Care, Comparative Effectiveness of Treatment Options and Management Strategies, Geriatric Health Services Research
Philip C. Smith (85), Pharmacokinetics, Drug Metabolism, Quantitative Targeted Proteomics
Dennis M. Williams (92), Inhalation Therapy for Pulmonary Disease, Hypertension, Clinical Pharmacokinetics, Infectious Diseases
Timothy J. Wiltshire, Preclinical and Clinical Pharmacogenetics, and Genomics, Precision Dosing/Pharmacotherapy
William C. Zamboni, Optimization of Chemotherapeutic Treatment of Cancer, Pharmacokinetics, Pharmacodynamics, Pharmacogenetics
Qisheng Zhang (130), Lipid Signaling and Small GTPases, Chemical Biology and Drug Discovery

Assistant Professors

Aaron Anselmo, Microbiome Delivery, Targeted Drug Delivery, Cell-Based Delivery, Determining the Role of Physicochemical Properties in the Delivery of Nanoparticles and Microbes
Rahima Benhabbour, Organic/Polymer Chemistry and Drug Delivery
Yanguang Cao, Pharmacokinetics, Pharmacodynamics, and Quantitative Pharmacology, Physiologic-Based Pharmacokinetics, Protein Therapeutics
Delesha Carpenter (88), Chronic Disease Self-Management, Medication Adherence, Patient-Provider Communication, mHealth, eHealth, Rural Health, Measurement, Asthma
Daniel J. Crona, Optimizing Treatments in Hematology/Oncology Through Pharmacogenetics, Pharmacokinetics and Pharmacodynamics
Julie Dumond, Pharmacometrics, Clinical Pharmacokinetics, / Pharmacodynamics, HIV Treatment
Daniel Gonzalez, Pediatric Clinical Pharmacology, Precision Dosing
Nate Hathaway, Investigating the Regulation of the Mammalian Genome, Developing New Chemical-Mediated Tools to Examine Chromatin Structure and Function, and Drug Discovery
Klarissa Jackson, Drug Metabolism
Lindsey Ingerman James, Chemical Biology of Chromatin Regulation, Chemical Probe Development for Epigenetic Regulatory Proteins
Alan Kinlaw, Drug Use Patterns, Comparative Effectiveness and Safety of Medications
Jacqui Mclaughlin, Practice Advancement, Clinical Education, Computational Modeling
Robert McGinty, Structural Biology, Protein Chemistry, Epigenetics
Gauri Rao, Quantitative Systems Pharmacology, Pharmacometrics, Pharmacokinetic and Pharmacodynamic Modeling
Megan Roberts, Improved Implementation of Evidence-Based Precision Medicine, Disparities, Communication and Implementation of Genetic Technologies
Amanda Seyerle, Genomic of Human Health, Gene-Environment Interaction, Epigenomics in Health Disparities
Casey Tak, Access to Prenatal and Postpartum Health Services, Pharmaceuticals and Other Healthcare Interventions on Pregnancy-Related Outcomes

Research Professors

Dmitri Kireev, Computational Biophysics, Computer-Aided Drug Design, Drug Discovery Informatics
Susan Morris-Natschke (102), Design, Synthesis, and Structural Optimization of Antiviral Compounds
Kenneth Pearce, Lead Discovery and Characterization, Assay Development, Biochemistry
Michael Wagner, Pharmacogenomics, Translational Pharmacology
Tim Willson, Director of Structural Genomics Consortium at UNC, Medicinal Chemistry, Kinase Inhibitors

Research Associate Professors

Elena Batrakova, Development of Active Targeted Delivery of Therapeutic Polypeptides to the Brain for Treatment of Parkinson's Disease Using Inflammatory-Response Cells as Vehicles, Development of Exosome-Mediated Drug Delivery Systems for Treatment of Cancer
David Drewry, Medicinal Chemistry, Kinase Inhibitors
Elias P. Rosen, Imaging Mass Spectrometry
Juan Li, Gene Therapy
Alexander Golbraikh, Chemical Biology and Medicinal Chemistry, Informatics
Eugene Muratov, Molecular Modeling
Susan Morris-Natschke (102), Design, Synthesis, and Structural Optimization of Antiviral Phospholipids
Samantha Pattenden, Technology Development to Discover Chromatin-based Therapeutic Targets
Eric Smith, Radiopharmacy
Xiaodong Wang, Drug Discovery for Therapeutic Targets in Oncology
Yongmei Xu, Carbonhydrate Chemistry and Biology
Bill Zuercher, Design, Synthesis and Utilization of Chemical Probes, Kinase Inhibitors

Research Assistant Professors

Alison Axtman, Synthesis of Small Molecules that Selectively Modulate Proteins Implicated in Disease-Propagating Pathway
Rachel Julia Church, Institute for Drug Safety Sciences
Mackenzie Cottrell, HIV Eradication, Clinical Pharmacology

Merrie W. Mosedale, Drug Toxicity, Organotype Culture Models, Exosome Biology
Eric Bachelder, Treatment of Autoimmune Diseases Through Modulation of Immune Responses with Microparticles
Dong Fu, Liver Cell Biology and Hepatic Pharmacology
Masuo Goto, Mechanism of Action Studies on Novel Natural Products and their Derivatives
Weigang Huang, Chemical Approaches to Explore the Phosphoinositides Related Cellular Process: 1) Development of Fluorogenic, Fluorescent, and Photoaffinity Labeling Probes; 2) Development of Small-Molecule Inhibitors for Phosphoinositides Metabolic Enzymes
Kevin Frankowski, Organic/Medicinal Chemistry, Therapeutic Areas of Interest: CNS Modulation and Cancer Treatment
Lindsey James, Chemical Biology of Chromatin Regulation, Chemical Probe Development for Epigenetic Regulatory Proteins
Andrew Lucas, Translational Oncology and Nanoparticle Drug Development Initiative
Samantha Pattenden, Chemical Biology of Chromatin Regulation
Melanie Priestman, Chemical Biology
Paul Sapienza, Biophysical Studies of Proteins and Macromolecular Interactions
Sarah Scarry, Medicinal Chemistry and Drug Discovery
Marina Sokolsky-Papkov, Stimuli Actuated Theranostic Drug Delivery Systems
Ruhang Tang, Molecular Pharmaceutics
Qunzhao Wang, Development of Biosensors to Visualize Behaviors of Protein Kinases in Live Cells
Xiang Wang, Molecular Modeling
Zhuo Wang, Drug Metabolism and Pharmacokinetics
Hao Zhu, Molecular Modeling

Clinical Professors

Robert E. Dupuis, Clinical Pharmacokinetics, Drug Metabolism of Immunosuppressant in Organ Transplant Recipients, Relationship Between Drug Metabolism, Toxicity and Outcomes
Adam M. Persky, Pharmacy Education, Pharmacokinetics and Pharmacodynamics of Dietary Supplements
Jo Ellen Rodgers, Clinical and Translational Research in Heart Failure

Clinical Associate Professors

Amanda H. Corbett, Pharmacology of Antiretrovirals, Ethnopharmacoloogy; Integrative Medicine Practices
Wendy Cox, Practice Advancement and Clinical Education
Stephen F. Eckel, Practice Advancement and Clinical Education
Scott Wayne Savage, Practice Advancement and Clinical Education

Clinical Assistant Professors

Amber Frick, Clinical Pharmacology and Pharmacogenomics
Jessica Greene, Pharmacy Education
Stephanie Kiser, Practice Advancement and Clinical Education
Nicole Pinelli-Reitter, Practice Advancement and Clinical Education
Amber Proctor, Thoracic Oncology, Hematology
David Steeb, Practice Advancement and Clinical Education

Adjunct Professors

Yuriy Abramov Computational Sciences in Drug Discovery and Development
Kirkwood Adams Jr., Heart Failure and Cardiovascular Disease
Wayne Anderson
Nancy Allbritton, Signaling in Single Cells, Microfabrication Systems for Cellular Analysis
Nancy Cole Baker
Hugh A. Barton, Translational Modeling & Stimulation; Pharmacokinetics, Dynamics and Metabolism
Daniel K. Benjamin Jr., Pediatric Clinical Trials
M. Alan Brookhart, Epidemiology
Gilbert Burckart, Pharmacology, Pediatrics
Patricia J. Bush, Asthma
Paul Bush, Practice Advancement and Clinical Education
William Campbell, Pharmaceutical Policy
Michael Crimmins, New Methodology and Synthesis of Natural Products
Skip Cummings, Primary Care, Obesity and Diabetes
Patricia Deverka, Senior Research Director, Center for Medical Technology Policy
Joseph Desimone, Polymer Synthesis, Liquid and Supercritical CO2 Processing, Gene Therapy and Drug Delivery
Nikolay Dokholyan, Computation/Experimental Biology and Structural Biology
Sean Ekins Collaborative Drug Discovery
Jean Paul Gagnon, Pharmaceutical Outcomes Research and the Pharmaceutical Industry
Robert Gomeni, Pharmacokinetics, Clinical Drug Development
John Grabenstein, U.S. Pharmacopeia and Vaccination
Klaus Hahn, Molecular Imaging Tools, Signaling Dynamics in Motility and Blood Cells
William Janzen, Assay Development and Compound Profiling
Clark D. Jeffries, Chemical Biology and Medicinal Chemistry
Brian Alvin Johns Drug Discovery
Kazunori Kataoka, Biomaterials
Natalia Klyachko, Biochemistry, Catalysis, Nanotechnology
Robert Konrad
Lawrence Lesko, Clinical Pharmacology and Drug Development
Qi Lu, Antisense Therapy for Muscular Dystrophy
Matthew Maciejewski, Pharmacoeconomics
Elaine Mardis, Characterization of Cancer Genomes, Genome Sequencing Technologies
Lesley Marson, Histology, Human Biology, Neuroscience
Howard Mcleod, Pharmacogenomics and Individualized Therapy
Alison Motsinger, Associate Professor, NC State Department of Statistics
Michael Murphy, Pharmaceutical Research in Molecular Genotyping
Kyoko Nakagawa-Goto Discovery and Development of Drug Candidates
David Nichols: Medicinal Chemistry on Psychoactive Drugs
Tudor Oprea:
Kouros Owzar, Biostatistics and Bioinformatics
Jai Patel, Levine Cancer Institute
Nita Patel, Senior Vice President, Operations, Artisan Pharma Inc.
Joseph Polli, Drug Metabolism and Transport
John Robert Powell, Clinical Pharmacology and Drug Development
D.K. Theo Raynor, Medication Risk Communication
Bryan Roth, GPCR Structure
Virginia Schmith, Pharmacokinetics, Pharmacodynamics, Pharmacometrics
Manmohan Singh, Vaccines and Biologics process and product development
Richard Stack, Cardiology, Medical Device Manufacturing
Til Sturmer, Epidemiology
Russell Thomas, Director, Center for Genomic Biology, Epidemiologic Methods and Bioinformatics Clinical Epidemiology
Robert Voyksner, Tools for Bioanalytical Chemistry
Melea Ward, Pharmaceutical and Health Policy, Regulatory Science, Developing Product Launch Plans

Amelia Warner
Morris Weinberger, Health Policy and Clinical Trials
Daniel L. Weiner, Pharmacometrics and Pharmaceutical Biostatistics
Anthony Williams
Lan Xie
Daryl C. Zeldin, Respiratory Biology, Exposure Assessment and Prevention of Asthma, Eicosanoid Metabolism
Zhao Zhiang

Adjunct Associate Professors

Kirkwood Adams Jr., Heart Failure and Cardiovascular Disease
Elizabeth Andrews, Drug Safety and Compliance
Ronald Brashear, Chemical Heritage Foundation
Andrea K. Biddle, Health Economics and Public Policy Analysis
Robert R. Bies, Pharmacometrics
Matthew Burke, Pharmaceutical Development
Kenneth Brouwer, Biotechnology
William Brock, Toxicology, Pharmacology
David M. Cocchetto, Clinical Pharmacology, Antiviral/Antibacterial Regulatory Affairs
Ke Cheng, Regenerative Medicine
Gregory Daniel, Pharmaceutical Economics, Comparative Effectiveness, and Pharmaceutical, Biologic, and Vaccine Safety
Rowell Daniels, Practice Advancement and Clinical Education
Paul A. Dayton, Biomedical Engineering and Ultrasound
Marisa Domino, Health Economics
Sean Ekins, Collaborative Drug Discovery
Michael Fath, Pharmaceutical Strategic Marketing, Medical Affairs, and Commercial Operations
Ronald A. Fleming, Drug Development, Oncology
John Edgar French, Toxicology
Felix Frueh, Pharmacogenomics and Clinical Pharmacology
Alex Z. Fu, Cost Effectiveness and Pharmacoeconmics
Ramprakash Govindarajan, Pharmacy
John Grabenstien, Pharmacy
Sandra Greene, Health Care Policy
Zhen Gu, Biomaterials Design, Biomacromolecular Engineering, and Micro/Nano-Fabrication
Alan Higgins, Preclinical Drug Development
Geoffrey Hird, Liquidia Technologies
William Janzen, Drug Discovery, High Throughput Screening, and Automation and Process Improvement
Clark D. Jefferies, Developing Assays for Small RNAs in Human Cell Lines and Tissue Samples and Developing Software to Interpret Small RNA Signatures as Diagnostics or Theranostics
John Kessler, Practice Advancement and Clinical Education
Nancy Allen Lapointe, Translational Research of Antiarrythmic Drug Therapy
T. Bryant Mangum, Business Management, Pharmacy Leadership, and Managed Care
Kyoko Nakagawa-Goto, Discovery and Development of Drug Candidates through Total Syntheses and Synthetic Modifications of Bioactive Natural Products Focused on Antitumor and Anti-HIV Agents
David Nichols, Study of Hallucinogens (Psychedelics) and Discovery of Novel D1 Dopamine Receptor Full Agonists
Alan Parr, BioCeutics
Lars Pedersen, Structural Biology
Kenneth R. Phares, Drug Development**,** Preformulation and Formulation Development
Susan Sutherland, Epidemiology Research, Statistical Computing, Data Management, Study Design
Chris Waller, Molecular Modeling and Bioinformatics
Michael Wascovich, Pharmacy Leadership and Hospital Pharmacy Management
Russell Thomas, Genomic Biology and Bioinformatics
Dan Weiner, Pharmacometrics, Pharmaceutical Biostatistics
Lan Xie, Chemical Biology and Medicinal Chemistry
David Zaharoff, Vaccine and Immunotherapy Delivery
Weifan Zheng, Chemical Biology and Medicinal Chemistry
Issam Zineh, Pharmacogenomics and Clinical Pharmacology
Mark Zylka, Molecules and Mechanisms for Pain and Autism, Angelman Syndrome Therapies

Adjunct Assistant Professors

Hisham Aljahedy, Pharmacoepidemiology and Drug Safety
Christopher Blanchette, Epidemiology, Pharmaceutical Health Services Research, Healthcare Economics
Peter Bonate, Pharmacokinetics Modeling Simulation
Alan Boyd, Neurocognitive Software Development
M. Alan Brookhart, Pharmacoepidemiology
Yevgeny Brudno, Pharmacoengineering
John Byrd, Evidence-Based Decision Making, Practice Outcomes Solutions and Application of Clinical, Economic, and Humanistic Outcomes Research
Jack W. Campbell, Pharmacy Law and Ethics
Scott Clark, Pharmacogenomics
Michael Cohen-Wolkoweiz, Pediatric Clinical Pharmacology and Pharmacometrics
Austin Combest, Global Drug Development
Lynn Dressler, Pharmacogenomics
Stephanie Earnshaw, Quality Management, Linear and Integer Programming and Network Optimization
Heather Edin
Eric C. Faulkner, Personalized Medicine Development
Mona Fiuzat, Heart Failure Drug Development and Pharmacogenomics
Kathy Foley, Rural Health, Demography, Sociology, and Health Outcomes Research
Justin Lee Geurink, Experimental Education
Giulia Ghibellini, Pharmacokinetics, Clinical Pharmacology
Alicia Gilsenan, Pharmacoepidemiology and Therapeutic Risk Management
Natalia Gonzalez
Zongchao Han, Gene Expression Patterns
Allison Harrill, Toxicology, Drug-Induced Liver Injury
Matthew Lau, Health Outcomes
Charles Lee, Provider-Patient Communication
Martin Marciniak, Health Outcomes, Oncology, Neuroscience and Cardiovascular
Phil Mendys, Cardiovascular Drug Development and Preventive Cardiology
Steven R. Moore, Health Policy and Planning
Alison A. Motsinger, Pharmacogenetics, Bioinformatics
Jai N. Patel, Preclinical Drug Development
Nita Patel, Preclinical Drug Development
Erick Peters, Psychiatric and Cancer Pharmacogenomics
Matthew T. Pletcher, Genetics, Pharmacogenomics
Katharine Sheldon, Practice Advancement and Clinical Education
Richard Stanford, Health Outcomes Strategy and Research
Andrine Swenson, Development and Application of Epidemiological Methods
Russell Thomas, Genomic Biology and Bioinformatics
Andrew Z. Wang, Radiation Oncology, Nanomedicine

Jian Wang, Pharmacology, Regulatory Science, Pharmacometrics
David Wei, Pharmacy Outcomes and Evaluation
Keele Wurst, Epidemiology
Maceij Zamek-Gliszczynski, Preclinical Drug Development

Professors Emeriti

William Campbell
George H. Cocolas
Dale Christensen
Anthony Hickey
James Heyward Hull, Drug Development, Cardiovascular Therapeutics
Khalid S. Ishaq
Rudolph Juliano
Hal Kohn
Tom S. Miya
G. Joseph Norwood

Subjects in this school include: Chemical Biology and Medicinal Chemistry (CBMC) (p. 510), Pharmacoengineering and Molecular Pharmaceutics (DPMP) (p. 511), Pharmacotherapy and Experimental Therapeutics (DPET) (p. 511), Practice Advancement and Clinical Education (PACE) (p. 513), Pharmaceutical Outcomes and Policy (DPOP) (p. 514), Pharmaceutical Sciences (Non-Departmental) (PHCY (p. 515)), Pharmaceutical Sciences (PHRS) (p. 519), and Practice Advancement and Clinical Education (PACE). (p. 513)

Chemical Biology and Medicinal Chemistry (CBMC)

Graduate-level Courses

CBMC 804A. Biochemical Foundations of Chemical Biology. 3 Credits.
Permission of instructor for students lacking the prerequisites. This course is designed to emphasize the elements of biochemistry, bioorganic chemistry, and molecular biology required for the design and synthesis of biologically-active compounds.
Requisites: Prerequisites, CHEM 466, BIOC 505 or 601, and PHCO 643.
Grading status: Letter grade.

CBMC 804B. Biochemical Foundations of Chemical Biology Journal Club. 1 Credit.
Permission of the instructor for students lacking the co-requisite. This is a seminar based course that will run in concert with 804A. Students will present journal articles and interact with seminar speakers.
Requisites: Co-requisite, CBMC 804A;
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

CBMC 805. Molecular Modeling. 3 Credits.
Introduction to computer-assisted molecular design, techniques, and theory with an emphasis on the practical use of molecular mechanics and quantum mechanics programs.
Requisites: Prerequisites, MATH 231, 232, and CHEM 481.
Grading status: Letter grade
Same as: BIOC 805.

CBMC 807. Foundations of Chemical Biology I: Organic and Medicinal Chemistry. 3 Credits.
The elements of organic chemistry required for the design and synthesis of chemical probes and biologically active compounds.
Requisites: Prerequisite, CHEM 262.
Grading status: Letter grade.

CBMC 833. Molecular Target-Based Drug Discovery. 3 Credits.
An integrated introduction to molecular target-based drug discovery including bioactive natural products, neuropharmacology, chemical biology, and recent advances and techniques in drug discovery.
Requisites: Prerequisite, CBMC 804A and 804B.
Grading status: Letter grade.

Medicinal Chemistry (MEDC)

Graduate-level Courses

MEDC 806. Macromolecular Modeling. 3 Credits.
Introduction to modeling and simulation techniques for biological macromolecules. Two lecture and three to four laboratory hours per week.
Requisites: Prerequisites, MATH 231, 232, and CHEM 430.
Grading status: Letter grade
Same as: BIOC 806.

MEDC 821. Chemistry of Natural Products. 3 Credits.
An introduction to the isolation, structure determination, biosynthesis, and synthesis of bioactive natural products; emphasis on aspects relating to medicinal chemistry. Three hours a week.
Requisites: Prerequisite, CHEM 466; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

MEDC 822. Selected Topics in Natural Products. 2 Credits.
Discussions of important recent developments in the chemistry of natural products of biomedical significance.
Requisites: Prerequisites, CHEM 466 and 468.
Grading status: Letter grade.

MEDC 836. Selected Topics in Synthetic Medicinal Chemistry. 2 Credits.
Discussions from current literature on the strategy and techniques involved in the synthesis of drug molecules. Two lecture hours a week.
Requisites: Prerequisite, CHEM 460.
Grading status: Letter grade.

MEDC 842. Therapeutic Proteins. 3 Credits.
This course covers applications of modern information theory and information technologies to biomolecular systems. The core of this course is an overview and practical applications of methods and techniques for the analysis of nucleic acid and protein sequences, sequence-structure, and sequence-function correlations.
Grading status: Letter grade.

MEDC 899. Seminar. 1 Credit.
Seminar consists of presentations on current research topics by the division's graduate students, faculty, and invited speakers from industry, government, and other academic departments and institutions. Only four credits of MEDC 899 may count toward requirement for the Ph.D. degree (two credits for M.S.).
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

MEDC 900. Introduction to Research in Medicinal Chemistry. 1-3 Credits.
One conference and three or more laboratory hours a week.
Requisites: Prerequisites, CHEM 261 and 262; Permission of the instructor.
Grading status: Letter grade.

MEDC 991. Research in Medicinal Chemistry. 1-9 Credits.
One conference and nine laboratory hours a week per course.
Grading status: Letter grade.

MEDC 993. Master's Research and Thesis. 3 Credits.
After didactic course work is complete, master's students register for three credits of MEDC 993 during the fall and spring semesters.
Repeat rules: May be repeated for credit.

MEDC 994. Doctoral Research and Dissertation. 3 Credits.
Students register for dissertation credits after successfully completing all didactic course work. A minimum of six credit hours are required for graduation.
Repeat rules: May be repeated for credit.

Pharmacoengineering and Molecular Pharmaceutics (DPMP)

Graduate-level Courses

MOPH 738. Nanomedicine. 3 Credits.
Offers an introduction to the interdisciplinary field of nanomedicine for students with physical, chemical, or biological sciences background. It will emphasize emerging nanotechnologies and biomedical application.
Grading status: Letter grade.

MOPH 810. Drug Metabolism. 1.5 Credit.
Permission of the instructor. Introduction to the use of concepts, chemistry, enzymology, and techniques in drug metabolism for the design and development of safe and effective therapeutic agents.
Grading status: Letter grade.

MOPH 840. Introduction to Research. 1-3 Credits.
Permission of the instructor. Students participate in research projects designed to introduce them to research opportunities in the pharmaceutical sciences.
Grading status: Letter grade.

MOPH 850. Pharmaceutical Analysis. 1 Credit.
Permission of the instructor. Introduction to quantitative instrumental analysis in pharmaceutics. One lecture hour a week.
Grading status: Letter grade.

MOPH 865. Trends in Molecular Pharmaceutics Research. 3 Credits.
An interactive course in which students actively participate by critical evaluation and discussion of current literature in the field of drug delivery.
Requisites: Prerequisite, MOPH 864.
Grading status: Letter grade.

MOPH 868. Advances in Drug Delivery and Nanomedicine. 6 Credits.
Discuss basic physicochemical and transport properties of the drug with emphasis in macromolecular drugs and nano drug carriers.
Requisites: Prerequisite, CHEM 430.
Grading status: Letter grade.

MOPH 890. Special Topics in Advanced Pharmaceutics. 1-12 Credits.
Permission of the instructor. A lecture and/or laboratory course designed to present new concepts and innovations in the area of drug delivery and disposition.
Grading status: Letter grade.

MOPH 899. Seminar. 1 Credit.
Seminar consists of presentations on current research topics by the division's graduate students, faculty, and invited speakers from industry, government, and other academic departments and institutions. Only four credits of MOPH 899 may count toward requirement for the Ph.D. degree (two credits for M.S.).
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

MOPH 900. Introduction to Research in MOPH. 2-3 Credits.
This course provides students the opportunity to work with a faculty mentor on a research project.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

MOPH 991. Research. 1-12 Credits.
Graduate course consisting of laboratory-based research, conferences with the major professor, and library investigations relating to research. One conference and nine laboratory hours a week per course.
Grading status: Letter grade.

MOPH 993. Master's Research and Thesis. 3 Credits.
After didactic course work is complete, master's students register for three credits of MOPH 993 during the fall and spring semesters.
Repeat rules: May be repeated for credit.

MOPH 994. Doctoral Research and Dissertation. 3 Credits.
Students register for dissertation credits after successfully completing all didactic course work. A minimum of six credit hours are required for graduation.
Repeat rules: May be repeated for credit.

Pharmacotherapy and Experimental Therapeutics (DPET)

Graduate-level Courses

DPET 800. PHAR PRAC GER PAT. 3 Credits.

DPET 801. Introduction to Hospital Pharmacy. 3 Credits.

DPET 802. TOP ACUTE CARE PHPR. 3 Credits.

DPET 803. AMB CARE PHAR PRAC. 3 Credits.

DPET 804. Pediatric Pharmacotherapy. 3 Credits.

DPET 805. Rural Health. 2-3 Credits.

DPET 806. INTRO RES PHAR PRAC. 1-3 Credits.

DPET 807. ID ELECTIVE-THERAPY. 2 Credits.

DPET 808. Critical Care. 3 Credits.

DPET 809. Hubbard Program. 3 Credits.
This interdisciplinary course for health professions students trains students to practice collaboratively in the care of their older patients.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DPET 810. THERAP HIV INFEC. 2 Credits.

DPET 811. Infectious Disease. 2 Credits.
Course consists of infectious disease case presentations by small groups of students. Discussion of a specific infectious disease, its drug therapy, and specific antibiotics are evaluated extensively at each session.
Requisites: Prerequisite, PHCY 449.
Grading status: Letter grade.

DPET 814. ENTREPRENEUR PHAR. 3 Credits.

DPET 815. Interdisciplinary Teamwork in Geriatrics. 3 Credits.
Course emphasizes the acquisition of skills and competencies necessary to provide effective interdisciplinary geriatrics care and leadership in a variety of settings, including rural and/or underserved communities.
Grading status: Letter grade.

DPET 818. Foundations in Exercise Prescription. 2 Credits.
This course is designed to introduce basic concepts and selected therapeutic applications of exercise testing and prescription.
Grading status: Letter grade.

DPET 819. The Package Insert: Drug Development for Clinicians. 2 Credits.
This course reviews the components of the package insert, provides an understanding of the key studies required to support each component, and provides insight into the strategic thinking required for planning these studies. Students will learn the drug development process and ways in which clinicians scientifically contribute to this effort.
Grading status: Letter grade.

DPET 820. MAN THE PRACT PHARM. 3 Credits.

DPET 821. Principles of Pharmacy Practice. 3 Credits.
Students discuss the modern role of the hospital pharmacist and how the role integrates progressive management with innovative services. The problems with implementing these programs are evaluated. Three lecture hours a week.
Requisites: Prerequisite, PHPR 249.
Grading status: Letter grade.

DPET 822. Advanced Clinical Pharmacy. 3 Credits.
Discussions, workshops, and lectures to develop the student's skills and abilities to make therapeutic recommendations, utilize drug literature, educate patients and health professionals, and record observations, plans, and actions in a problem-oriented record.
Grading status: Letter grade.

DPET 831. Quantitative Methods in Clinical Research. 3 Credits.
Required preparation, introductory biostatistics or general statistics. Graduate standing or permission of the instructor. This course reviews statistical concepts and discusses the most commonly used statistical methods for analysis of data from clinical studies or research experiments. Students will analyze problem datasets using SAS.
Grading status: Letter grade.

DPET 832. Pharmacogenomics. 2 Credits.

DPET 833. Experimental Design Considerations in Clinical Research. 2 Credits.
Course provides an overview of clinical trials methodology, focusing primarily on designs of (and common flaws in) clinical drug trials and nonclinical research experiments intended to answer clinical questions.
Grading status: Letter grade.

DPET 834. Methods in Quantitative Systems Pharmacology. 3 Credits.
Open to graduate student and PY3 students. This course utilizes hands on experiences to introduce the student to the principles and practices of contemporary quantitative systems pharmacology.
Requisites: Prerequisites, DPET 855 and 856.
Grading status: Letter grade.

DPET 836. Elements of Scientific Writing and Communication. 2 Credits.
This course is designed to help students develop strategies for presenting research ideas and results in written and oral form and for participating effectively in the peer review process.
Grading status: Letter grade.

DPET 838. Methods in Pharmacogenomics. 2 Credits.
The goals of this course are to provide graduate students with an understanding of major genomic discovery methodologies and their application for solving translational research problems.
Requisites: Prerequisite, DPET 832; Permission of the instructor for student lacking the prerequisite.
Grading status: Letter grade.

DPET 840. Advanced Pharmacotherapy. 3 Credits.
A modular approach to advanced level pharmacotherapy. Coursework using the Pharmacotherapy Self Assessment Program (PSAP) aimed at improving clinical skills and reviewing standards of practice.
Grading status: Letter grade.

DPET 841. Science and Methods in Drug Development. 2 Credits.
Provides working knowledge of commonly-used processes, techniques, and methods involved in drug development processes, emphasizing pre-clinical aspects. Lectures and in-class case-based interactive discussion. Students will develop problem-solving skills, writing and presentation skills, and will be exposed to analytical and pharmaceutical methods and gain experience interpreting data for regulatory approval.
Grading status: Letter grade.

DPET 853. PK Module 1: Pharmacokinetic Concepts and Applications. 1.75 Credit.
Required preparation, elementary calculus; students without prior coursework in pharmacology/pharmacokinetics are encouraged to discuss their backgrounds with the module coordinator for recommendations of introductory work. Module is an introduction to pharmacokinetic theory, mathematical model development, and data analysis. Assumes basic knowledge of human physiology, drug administration and action, and calculus.
Grading status: Letter grade.

DPET 854. PK: Module 2: Pharmacodynamic Concepts and Applications. 1.25 Credit.
This course is an introduction to pharmacodynamics from a modeling and simulation perspective. Students will build upon the material introduced in Module 1 and apply data analysis techniques to dynamics data.
Requisites: Pre- or corequisite, DPET 853.
Grading status: Letter grade.

DPET 856. Advanced Pharmacokinetics and Pharmacodynamics. 4 Credits.
Advanced treatment of contemporary pharmacokinetic theory and application, with emphasis on model development, analytical approaches to parameter estimation, and experimental design/data analysis.
Requisites: Prerequisite, MOPH 855; Permission of the instructor.
Grading status: Letter grade.

DPET 857. PK Module 3: Population PK/PD Analysis. 2 Credits.
This course is an introduction to population pharmacokinetic and pharmacodyanmic modeling techniques, including theory and application.
Requisites: Prerequisite, DPET 854.
Grading status: Letter grade.

DPET 858. PK Module 4: Advanced PK/PD Modeling. 2 Credits.
This course covers a series of advanced pharmacokinetics/pharmacodynamics (PK/PD) modeling concepts and techniques, fundamental elements towards systems pharmacology, and methodology of developing mechanism-based PK/PD models in drug development.
Requisites: Pre- or corequisite, DPET 857.
Grading status: Letter grade.

DPET 873. Precision Therapeutics Through Genomics. 3 Credits.
Evidence-based medicine and the use of clinical practice guidelines is evolving to include application of genomic information to target drug therapies for patients. This course reviews the principles and applications of genomics to therapeutics and studies examples where this field is impacting therapeutic decisions in a variety of disease states.
Grading status: Letter grade.

DPET 900. Introduction to DPET Research: Translational Science Journal Club. 1 Credit.
This one credit hour course is offered jointly with the Universities of Minnesota and Pittsburgh. Students participate in journal club discussions by video teleconferencing on articles emphasizing methods which allow the translation from preclinical to clinical investigation in different therapeutic areas with emphasis on pharmacometrics, pharmacogenomics, and biomarker validation.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

Practice Advancement and Clinical Education (PACE)

Advanced Undergraduate and Graduate-level Courses

PACE 607I. Inter-Professional Team Work and Communication: Keys to Patient Safety. 3 Credits.
This inter-professional course focuses on understanding roles, teamwork, and communication to improve patient safety within the health care environment. National standards and initiatives will be foundational to the course.
Requisites: Prerequisite, completion of first year in Doctor of Pharmacy program.
Grading status: Letter grade.

Graduate-level Courses

PACE 700. Community Outreach and Service Learning. 0 Credits.
This course provides service learning opportunities to apply pharmacy practice within the context of interprofessional care for vulnerable populations through participation with local clinic programs. Enrollment is required for participation in any aspect of clinic programs. Enrollment is restricted to Pharmacy students.
Repeat rules: May be repeated for credit. 0 total credits. 16 total completions.
Grading status: Pass/Fail.

PACE 803. Ambulatory Care. 3 Credits.
Provides comprehensive immunization education, discusses strategies to develop, implement, and maintain pharmacy-based immunization services, and provides opportunities to practice administration of subcutaneous and intramuscular injections.
Requisites: Prerequisites, PHCY 442, 443, 444, 445, and 446.
Grading status: Letter grade.

PACE 804. Teaching and Learning Concepts of Pharmacy Practice. 3 Credits.
This course introduces pharmacy students to teaching and learning theories and concepts that may be used during future teaching opportunities and assist in the development of lifelong learning techniques.
Requisites: Prerequisites, PHCY 401 and 402.
Grading status: Letter grade.

PACE 806. Medication Therapy Management. 2 Credits.
This course examines the expanded role of pharmacists in the community setting with the focus on integrating their pharmacotherapy knowledge into the Medication Therapy Management role.
Requisites: Prerequisites, PHCY 442, 443, 444, 445, and 446.
Grading status: Letter grade.

PACE 815. Evaluation Research and Project Design. 3 Credits.
This course provides formal instruction on critical components of evaluation research, study design, and data analyses that a Master in Pharmaceutical Sciences with a specialization in health system pharmacy administration graduate will need in the workplace.
Grading status: Letter grade.

PACE 820. Health-System Pharmacy Leadership. 3 Credits.
Graduate student status in the MS in Pharmaceutical Sciences (Health-System Pharmacy Administration subplan) program required. This course focuses on principles of leadership and strategies used by leaders, with an emphasis in health-system pharmacy. Active learning strategies are used to examine and model leadership principles.
Grading status: Letter grade.

PACE 821. Rural Pharmacy Health 1: Introduction to Rural Pharmacy Practice. 1 Credit.
This seminar course is the first in a four-semester course sequence intended to facilitate skill development in rural pharmacy practice as part of the Rural Pharmacy Health Certificate Program. Enrollment is reserved for Rural Pharmacy Health Scholars only.
Grading status: Letter grade.

PACE 822. Rural Pharmacy Health 2: Cultural Competence and Physical Assessment in Rural Pharmacy Health. 1 Credit.
This seminar course is the second in a four-semester course sequence intended to facilitate skill development in rural pharmacy practice as part of the Rural Pharmacy Health Certificate Program. Enrollment is reserved for Rural Pharmacy Health Scholars only.
Requisites: Prerequisite, PACE 821.
Grading status: Letter grade.

PACE 823. Rural Pharmacy Health 3: Interprofessional Practice. 1 Credit.
This seminar course is the third in a four-semester course sequence intended to facilitate skill development in rural pharmacy practice as part of the Rural Pharmacy Health Certificate Program. Enrollment is reserved for Rural Pharmacy Health Scholars only.
Requisites: Prerequisite, PACE 821, PACE 822.
Grading status: Letter grade.

PACE 824. Rural Pharmacy Health 4: Population Health Management. 1 Credit.
This seminar course is the fourth in a four-semester course sequence intended to facilitate skill development in rural pharmacy practice as part of the Rural Pharmacy Health Certificate Program. Enrollment is reserved for Rural Pharmacy Health Scholars only.
Requisites: Prerequisites, PACE 821, PACE 822, PACE 823.
Grading status: Letter grade.

PACE 825. Foundational Practices of a Successful Health-System Department of Pharmacy. 4 Credits.
MS in Pharmaceutical Sciences students with a specialization in Health-System Pharmacy Administration. This course will focus on the Foundational Practices of a Successful Health-System Department of Pharmacy. Topics covered include medication safety, pharmacy informatics, and human resources management.
Grading status: Letter grade.

PACE 830. The Leadership Challenge. 2 Credits.
Introducing students to the principles of leadership and strategies used by leaders, regardless of position or pharmacy practice setting, and helps prepare student pharmacists to meet the leadership challenge. Active learning strategies are used to examine and model leadership principles. Instructors will lead discussions on various topics pertaining to leadership.
Grading status: Letter grade.

PACE 832. Financial Management of Health-system Pharmacy. 3 Credits.
MS in Pharmaceutical Sciences students only. This course provides an overview of the current financial environment in the health care industry and is intended to familiarize students with general accounting principles and financial management skills required to lead and manage pharmacy services in a health care organization.
Grading status: Letter grade.

PACE 833. Overview of Health Systems. 3 Credits.
MS in Pharmaceutical Sciences students with a specialization in Health-System Pharmacy Administration. This course is designed to expose participants to real world issues facing health system pharmacy leaders and to teach participants to work through concepts, processes, and challenges that are and will be faced.
Grading status: Letter grade.

PACE 860. Advanced Hospital Pharmacy Operations. 3 Credits.
This course is intended to build on the basic principles of pharmacy operations learned through coursework and experience as professional students as well as work experience.
Grading status: Letter grade.

PACE 896. Independent Study in PACE. 1-8 Credits.
Independent Study in the Division of Practice Advancement and Clinical Education.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

Pharmaceutical Outcomes and Policy (DPOP)

Graduate-level Courses

DPOP 801. Economics and Behavior of the International Pharmaceutical Industry. 3 Credits.
This course focuses on the empirical investigation of the economic and health impact of major pharmaceutical policies, regulations, market conditions, prescription drug use, and pharmaceutical care.
Grading status: Letter grade.

DPOP 803. Social and Behavioral Aspects of Pharmaceutical Use. 3 Credits.
This course will draw upon medical sociology and health psychology to familiarize students with core theories, research, measures, and design issues relevant to conducting social/behavioral research in pharmaceutical use.
Grading status: Letter grade.

DPOP 804. Introduction to Healthcare Database Research. 3 Credits.
Course will provide foundational knowledge for using administrative health care claims and other relational data for health services research. Students will learn to: manage large databases in SAS, identify key variables in administrative data, and design and implement a study protocol.
Grading status: Letter grade
Same as: HPM 804.

DPOP 805. Patient-Reported Outcomes: Theory, Methods, and Applications. 3 Credits.
Course examines theoretical and methodological issues related to the assessment of patient reported outcomes, including health-related quality-of-life, in pharmaceutical research. Current and potential applications are highlighted.
Grading status: Letter grade.

DPOP 806. Pharmaceutical Policy. 3 Credits.
Course examines policies that influence pharmacy. Structured methods of policy analysis are examined and used to assess theoretic and analytic applications for evaluating pharmaceutical policy.
Grading status: Letter grade.

DPOP 870. Pharmaceutical Outcomes Research. 3 Credits.
Required preparation, introductory statistics and research methods coursework. Permission of the instructor for students lacking the required preparation. This is an intermediate-to-advanced-level applied and contemporary research methods class for students to build methodological and analytical knowledge to conduct high quality studies in evaluating pharmaceutical treatment utilization and outcomes.
Grading status: Letter grade.

DPOP 872. Proposal Writing in DPOP. 3 Credits.
How to write research proposals, including dissertation grants.
Grading status: Letter grade.

DPOP 899. Seminar. 1 Credit.
Forum for scholarly discussion of policy issues, research ideas and methods, campus and industry research resources, and the presentation of ongoing research. In addition to presentations by DPOP faculty and students, seminar will include presentations from invited researchers from industry, managed care, foundations, health care organizations, clinicians, and other departments.
Grading status: Letter grade.

DPOP 900. Introduction to Research in DPOP. 2-3 Credits.
This course offers students the opportunity to work with a faculty mentor on a research project.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

DPOP 901. Selected Topics in Pharmaceutical Outcomes and Policy. 1-3 Credits.
A reading and/or special projects course for both undergraduate and graduate students interested in pursuing additional work in the administrative and social sciences as they pertain to pharmacy practice. One to three hours a week.
Grading status: Letter grade.

DPOP 902. Methods in Pharmaceutical Outcomes Research. 3 Credits.
Includes formulating a research question, stating aims and hypothesis. Students are introduced to formulating a research strategy to write the background of the protocol, developing a research methodology, addressing measurement issues, selecting an appropriate design, and performing statistical analysis and power calculations. Three lecture hours a week.
Grading status: Letter grade.

DPOP 991. Research in Pharmaceutical Outcomes and Policy. 1-6 Credits.
Consists of laboratory work, conferences with the major professor, and library investigations relating to research.
Grading status: Letter grade.

DPOP 993. Master's Research and Thesis. 3 Credits.
A minimum of six hours of thesis credit must be taken in order to complete the requirements for the master's degree.
Repeat rules: May be repeated for credit.

DPOP 994. Doctoral Research and Dissertation. 3 Credits.
There is no limit to the number of dissertation hours that can be taken; however, no more than six hours may be applied to the minimum of 45 hours needed to satisfy graduation requirements.
Repeat rules: May be repeated for credit.

Pharmaceutical Sciences (Non-Departmental) (PHCY)

Advanced Undergraduate and Graduate-level Courses

PHCY 504. Evidence-Based Practice. 3 Credits.
The course teaches students to identify, critically evaluate, and interpret scientific literature to support the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. Skills developed include experimental design, identifying gaps in knowledge, asking relevant questions, and drawing appropriate conclusions.

PHCY 519. Self-Care and Non-Prescription Medications. 1.5 Credit.
Pharmacists are often the first health care professional patients turn to when seeking guidance to treat common ailments. This course focuses on quickly and accurately assessing patients to determine candidacy for self-care therapy, including nonprescription selections. Establishing a process to triage patients regarding self-care management is emphasized.
Requisites: Prerequisite, PY1 standing.

PHCY 529. Pharmacotherapy: Foundations. 3 Credits.
This course serves as a transition from foundational coursework to direct patient care and coordinates learning activities with concurrent term courses. Students will learn how to approach patient scenarios and formulate pharmacotherapy recommendations. In-class discussion involves the application of pharmacotherapy principles to patient cases.
Requisites: Prerequisites, PHCY 502, 503, and 516.

PHCY 610. Horizons: Changing the Landscape of Health Care. 1 Credit.
This seminar series is designed to expose students to luminaries who are extending the boundaries of what is possible in healthcare and to thought leaders who will engage students in conversation around emerging topics of critical importance in healthcare.
Grading status: Pass/Fail.

PHCY 611. Applied Clinical Pharmacology. 3 Credits.
This course applies foundational elements of clinical pharmacology and problem-solving skills to individual patient and population-based clinical scenarios. Emphasis placed on dosing and monitoring pharmacotherapy regimens that maximize desired effects and minimize adverse effects to reinforce content covered in concurrent courses.
Requisites: Prerequisites, PHCY 510, 511, and 512.

PHCY 621. Pharmacy Innovation and Problem Solving. 3 Credits.
This course is designed to foster the habits of mind of scholarly and entrepreneurial practitioners. This course is designed for students to develop innovative problem-solving skills through case studies; and for student teams to apply innovative problem solving in proposing a solution to a real-world problem.
Requisites: Prerequisite, PHCY 520.

PHCY 624. Research and Scholarship in Pharmacy I. 1.5 Credit.
This course is part of a three-course sequence built around a mentored, in-depth, scholarly project. Students will frame an answerable question with a faculty mentor, generate and interpret relevant data, and communicate their findings in an oral and written forum.
Requisites: Prerequisites, PHCY 504 and 621.

PHCY 630. Pharmacotherapy: Applied. 4 Credits.
Pharmacotherapy: Applied serves as a transition from foundational coursework to the direct patient care setting and builds upon basic pharmacotherapy principles learned in Pharmacotherapy: Foundations. Case-based learning and other engagement activities will be utilized to develop clinical decision making and critical and situational thinking skills, as well as the development of team-based learning with comprehensive cases.
Requisites: Prerequisite, PY2 Standing.

PHCY 631. Pharmacotherapy: Integrated I. 5 Credits.
This course builds off of PHCY 630 in which students will engage in pharmacotherapeutic decision making that integrates advanced clinical pharmacology and pharmacokinetics.
Requisites: Prerequisite, PHCY 630.

PHCY 636. Leadership and Professional Development I. 1 Credit.
This course focuses on leading self before leading others. Students will be guided through the development of a keen sense of self through self-awareness and self-reflection in order to begin developing the "leader within" to lead with and through others.
Requisites: Prerequisite, PHCY 501.

PHCY 691. Immersion Experience: Health Systems. 8 Credits.
PHCY 691 is designed to apply foundational knowledge from the classroom and develop pharmacy practice skills within the context of a health system, which is is essential for students prior to entering more advanced clinical experiences. This Immersion Experience will be conducted in an inpatient setting.

Graduate-level Courses

PHCY 700. SHAC: Community Outreach and Service Learning. 0 Credits.
This course provides service learning opportunities to apply pharmacy practice within the context of inter-professional care for vulnerable populations through participation with local clinic programs. Enrollment is required for participation in any aspect of clinic programs. Enrollment is restricted to Pharmacy students.
Repeat rules: May be repeated for credit. 1 total credits. 6 total completions.

PHCY 718. The Patient Care Experience II. 2 Credits.
This course prepares students to fully engage in patient interactions in a wide variety of pharmacy practice settings. Emphasis is placed on pharmacy ethics and patients experiencing mental health crises. Through reflective activities, students identify strengths and opportunities for growth.
Requisites: Prerequisite, PHCY 617.

PHCY 722. Pharmacy Law: Regulation of Pharmacy Practice. 3 Credits.
This course surveys the legal and regulatory frameworks that govern pharmacy practice. It begins with a review of the United States legal system. Next, it focuses on federal and state statutes and regulations. It concludes by examining common-law malpractice principles and their application to pharmacy practice.
Requisites: Prerequisite, PY3 standing.

PHCY 725. Research and Scholarship in Pharmacy II. 1.5 Credit.
Research and Scholarship in Pharmacy 2 is the second course in a 3-course sequence that is built around a mentored, in-depth, scholarly project. Students will frame an answerable question with a faculty mentor, generate and interpret relevant data, and communicate findings in an oral and written forum.
Requisites: Prerequisite, PHCY 624.

PHCY 726. Research and Scholarship in Pharmacy III. 3 Credits.
This is the third course in a 3-course sequence that is built around a mentored, in-depth, scholarly project. Students will (1) frame an answerable question with a faculty mentor, (2) generate and interpret relevant data, and (3) communicate their findings in an oral and written forum.
Requisites: Prerequisite, PHCY 725.

PHCY 732. Integrative Pharmacotherapy II. 5 Credits.
Integrative Pharmacotherapy II is the second in a series of three case-based courses. It builds upon the clinical decision-making process and knowledge base introduced in PHCY 631, further developing students' capacity to research, analyze and solve complex, patient medication problems in holistic, evidence-based ways.
Requisites: Prerequisite, PHCY 630 and PHCY 631.

PHCY 733. Integrative Pharmacotherapy III. 5 Credits.
The last of a three case-based course sequence, PHCY 733 deepens the clinical decision-making process and knowledge base introduced in the preceding courses. Students will further develop their capacities to effectively and efficiently research, analyze and solve complex patient medication problems in a holistic, evidence-based, professional manner.
Requisites: Prerequisite, PHCY 732.

PHCY 737. Leadership and Professional Development II. 1 Credit.
Leadership and Professional Development II focuses on leaving a leadership legacy. Collaboration, teamwork, and the ability to exercise professionalism in crucial conversations are key to achieving success as a leader. Students will develop their leadership identity within teams, while learning effective strategies to maximize team members' strengths.
Requisites: Prerequisite, PHCY 636.

PHCY 791. Immersion Experience 3. 8 Credits.
This course is designed to allow student pharmacists to provide patient-centered collaborative care that will optimally prepare students for the Advanced Pharmacy Practice Experiences in the fourth professional year.
Requisites: Prerequisites, PHCY 631, 691.

PHCY 800. Geriatric Pharmacy Practice. 3 Credits.
This course is designed to provide opportunities to enhance knowledge and skills in geriatric pharmacotherapy and other health disciplines involved in the care of seniors. This course will challenge students to identify and resolve health and medication use problems they may encounter while caring for older patients.
Requisites: Prerequisite, PY3 Standing.

PHCY 801. Radiopharmacy I: Introduction to Radiopharmacy. 1 Credit.
Radiopharmacy I introduces students to the use of radioactivity in medicine science, the practice of compounding, medical imaging, and the role of pharmacists in molecular imaging. This is the first course in the pathway for completing the didactic requirements of an Authorized Nuclear Pharmacist.
Requisites: Prerequisite, PY2 Standing.

PHCY 802. Radiopharmacy 2 - The Drugs of Nuclear Medicine. 2 Credits.
Radiopharmacy II is the second course in the series of radiopharmacy curriculum. While fundamental concepts were established in MOPH/PHCY 801, this course will delve into the instrumentation used in radiopharmacy as well as the biological effects of radiation.
Requisites: Prerequisite, Completion of Radiopharmacy I (MOPH 801) with a grade of C or better.

PHCY 803. Radiopharmacy 3. 3 Credits.
This is the final course in the series of radiopharmacy curriculum. This course will focus sharply on the radiopharmaceuticals and ancillary drugs used in nuclear medicine. Time will also be devoted to ensure the student's understanding of the use of radiopharmaceuticals in drug development and clinical research.
Requisites: Prerequisite, PHCY 802.

PHCY 804. Travel Medicine Care. 1.5 Credit.
This course prepares students to deliver comprehensive travel medicine care to international travelers. Through readings, lectures, and case discussions, students learn key concepts of travel medications, vaccines, risk assessment and education. This knowledge is applied in a practice experience with a travel vaccine expert.
Requisites: Prerequisite, PY2 or PY3 standing.

PHCY 805. Independent Study and Research in Pharmacy. 1-6 Credits.
Required preparation, arranged with the faculty member in each individual case. Contract with a faculty member required. Permission of the instructor. Provides opportunities for professional (doctor of pharmacy) students to conduct independant study or participate in research projects designed to introduce them to a specialized area of practice or research.

PHCY 806. Contemporary Topics in Pharmacy. 1-3 Credits.
Experimental course, for professional (doctor of pharmacy) students, to determine the need and demand of courses in new content areas. Topics will be chosen by faculty based on current issues.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PHCY 807. Veterinary Pharmacotherapy. 3 Credits.
PY3 PharmD students. An introductory course providing students with the knowledge and skills required to provide effective pharmaceutical care and compounds to non-human patients.

PHCY 808. Critical Care. 3 Credits.
The course is designed to develop knowledge in common acute diseases encountered in the ICU by utilizing patient cases. Classes will focus on choice and rationale for therapy, dosing guidelines, and monitoring parameters. Two visits to the ICUs at UNC-CH are required.
Requisites: Prerequisite, PY3 Standing.

PHCY 809. Effective Teaching Strategies for Health Sciences Education. 1.5 Credit.
This course prepares professional students in pharmacy and other health professions to adapt and apply effective, research-based strategies and skills to design, promote, and assess learning in a variety of settings, including: large- and small group teaching, precepting, continuing professional education, and/or patient and community health education.
Requisites: Prerequisite, PY2 standing.

PHCY 810. The Science of Pharmaceutical Compounding. 1 Credit.
This course immerses students in the exploration of science utilized in contemporary pharmaceutical compounding. Students will investigate relationships between physiochemical principles and compounded preparatories, and develop strategies for preparing and assessing correctly and incorrectly compounded preparations.
Requisites: Prerequisite, PHCY 513.

PHCY 811. Infectious Diseases. 1.5 Credit.
This course expands student knowledge of the pharmacotherapy of bacterial, fungal, and viral infections. It also builds upon topics covered in the required PharmD curriculum, and introduces several new disease states. Presentations and course activities include case and evidence-based discussions led by infectious diseases faculty and practitioners.
Requisites: Prerequisite, PY3 standing.

PHCY 812. Pediatric Pharmacotherapy. 1.5 Credit.
A comprehensive overview of developmental pharmacology and pharmaceutical management of various disease states in pediatric patients. Emphasis will be placed on nutrition management and pharmacokinetic recommendations for pediatric patients.
Requisites: Prerequisite, PY3 standing.

PHCY 813. Clinical Toxicology. 1.5 Credit.
This course explores the clinical toxicology of drugs and chemicals is and provides an overview of the clinical manifestations, assessment and treatment of poisonings with common drug, chemical and biological agents.
Requisites: Prerequisite, PHCY 631.

PHCY 814. Disaster Preparedness and Emergency Care. 1.5 Credit.
Students will learn about different types of disasters and the treatment of common disaster related injuries. They will also learn about strategies for health care delivery during disasters.
Requisites: Prerequisite, PY2 or PY3 standing.

PHCY 816. Integrative Medicine. 1.5 Credit.
This is a survey course intended to introduce students to various complementary and alternative medicine practices, and their integration into traditional medicine. It will utilize active learning strategies to enhance student involvement.
Requisites: Prerequisite, PY3 standing.

PHCY 817. Making Medicine: The Process of Drug Development. 1.5 Credit.
This course examines the drug development process and its connections to clinical research and healthcare outcomes through independent student exploration of on-line content followed by group activities and facilitated classroom discussion on important issues related to each state of the drug development process.
Requisites: Prerequisite, PY2 standing.

PHCY 821. Contemporary and Applied Communcations in Healthcare. 1.5 Credit.
This course is designed to prepare students who are interested in developing and enhancing their health communication skills across a broader range of constituents in the field of healthcare.
Requisites: Prerequisite, PY2 standing.

PHCY 822. Hematology/Oncology Pharmacotherapy. 3 Credits.
Prerequisite: PY3 standing. This course explores non-pharmacologic treatment modalities, complications of cancer and treatment, supportive care issues and subspecialties and reviews current cancer screening and prevention guidelines and cancer research.

PHCY 823. International Clinical Classroom Case Discussion. 2 Credits.
Permission of the instructor. An elective offering interactions with pharmacy students from other countries, facilitated through the discussion and critical evaluation of relevant clinical cases highlighting pharmacotherapy issues.
Requisites: Prerequisite, PY2 or PY3 standing.

PHCY 830. Introduction to Drug Development. 2 Credits.
Includes preclinical drug safety evaluation, preclinical pharmacology, design of protocols for Phases I-IV, FDA guidelines for clinical study, preparation of study plan, statistics in clinical trials, data analyzing, and FDA interactions with industry.

PHCY 831. Applied Self-Care Therapeutics. 1.5 Credit.
This course utilizes a systematic process to quickly and accurately assess patients for self-care treatment. Team-based learning will engage students in discussion on the appropriate use of nonprescription medications, dietary supplements, and herbal products. Students will apply skills in literature evaluation and practice communicating recommendations to patients and healthcare providers.
Requisites: Prerequisites, PHCY 504, PHCY 516, PHCY 601, PHCY 630, PHCY 631.

PHCY 832. Innovations in Community-Based Pharmacy Practice. 1.5 Credit.
This course will expose students to novel ways in which community-based pharmacists are leading change and providing patient care, including but not limited to health and wellness services, immunization services, medication management, chronic care management services, care transitions with medication reconciliation, and specialty pharmacy. Students will also complete the National Association of Chain Drug Stores (NACDS) Point-of-Care Testing Certificate Program.
Requisites: Prerequisite, PY3 standing.

PHCY 833. Advanced Cardiovascular Pharmacy. 3 Credits.
Prerequisite: PY3 Standing. Provides an in-depth discussion of the pharmacotherapy of major cardiovascular diseases such as hypolipidemia, hypertension, ischemic heart disease, heart failure, and arrhythmias.

PHCY 834. 21st Century Independent Pharmacy Ownership. 3 Credits.
Independent community pharmacy is a rapidly changing health care industry. In this course, we will explore topics relevant to a career in independent pharmacy including: healthcare policy; supply chain; business and reimbursement models and evolving practice models.
Requisites: Prerequisite, PY3 standing.

PHCY 836. Prevention, Treatment, and Recovery of Substance Use Disorders. 1.5 Credit.
There is a crippling opioid epidemic in the US stemming from decades of misguided approaches to addiction. This course addresses prevention, treatment, and recovery of substance use/misuse disorders, exploring addiction as a chronic brain disease with societal and economic factors contributing to development and progression.
Requisites: Prerequisite, PY3 standing.

PHCY 837. Pharmacogenetics. 1.5 Credit.
Pharmacogenetics covers the generation of pharmacogenetics data, the analysis of that data, and the development the reporting structure of gene/drug interactions. Students will investigate data analysis tools for pharmacogenetics, and review clinical outcomes data and clinical case studies.
Requisites: Prerequisite, PY3 standing.

PHCY 839. Global and Rural Health: Maximizing Interprofessional Teams to Impact Patient Outcomes. 1 Credit.
Global and rural health share public health approaches when identifying and implementing healthcare solutions. This course explores approaches, while engaging students in interprofessional, project-based learning. Students across multi-healthcare disciplines will explore cross-cultural communication, the social determinants of health, and service delivery in low resource settings.
Requisites: Prerequisite, PY2 or PY3 standing.

PHCY 840. Health Policy and Managed Care. 3 Credits.
This course is designed to expand students' understanding of health policy and managed care, with an emphasis on the intersection of these broad topics and the profession of pharmacy. As a result of this course, students will be well-prepared to enter careers in pharmacy for which knowledge of health policy and managed care is essential. These include professional advocacy, regulatory affairs, market access, and managed care.
Requisites: Prerequisite, PY3 Standing.

PHCY 846. Perspectives in Mental Health. 2 Credits.
This course is designed to meet the needs of pharmacy students interested in further developing their knowledge base in psychiatry and select neurology topics. Class sessions focus on choice and rationale for therapy, dosing guidelines, monitoring parameters for assessment of efficacy and toxicity, literature review, and application in clinical practice.
Requisites: Prerequisites, PY3 Standing.

PHCY 886. Advanced Immersion Experience: Patient Care Elective I. 4 Credits.
Prerequisite: PY4 Standing. The patient-focused elective provides students experience in a unique patient care practice environment. Students will utilize abilities learned previously in the curriculum in order to collect patient-specific information, evaluate and monitor drug therapy, educate patients and caregivers, respond to drug information inquiries and to meet site-specific objectives.

PHCY 887. Advanced Immersion Experience: Patient Care Elective II. 4 Credits.
Prerequisite: PY4 Standing. The patient-focused elective provides students experience in a unique patient care practice environment. Students will utilize abilities learned previously in the curriculum in order to collect patient-specific information, evaluate and monitor drug therapy, educate patients and caregivers, respond to drug information inquiries and to meet site-specific objectives.

PHCY 888. Advanced Immersion Experience: Non-Patient Care Elective I. 4 Credits.
The non-patient focused elective provides students experience in unique pharmacy practice environments such as health care related professional societies, pharmaceutical industry corporate headquarters or manufacturing facilities, the FDA, etc. Students will utilize abilities learned previously in the curriculum to meet general course and site specific objectives.
Requisites: Prerequisite, PY4 Standing.

PHCY 889. Advanced Immersion Experience: Non-Patient Care Elective II. 4 Credits.
The non-patient focused elective provides students experience in unique pharmacy practice environments such as health care related professional societies, pharmaceutical industry corporate headquarters or manufacturing facilities, the FDA, etc. Students will utilize abilities learned previously in the curriculum to meet general course and site specific objectives.
Requisites: Prerequisite, PY4 Standing.

PHCY 891. Advanced Immersion Experience: Community. 4 Credits.
This course builds on foundational knowledge and skills gained during previous Immersion Experiences. Students will engage in a systems-based approach to quality improvement processes, develop practice management skills related to the medication use process, and refine skills in applying a consistent approach to patient care.
Requisites: Prerequisite, PY4 Standing.

PHCY 892. Advanced Immersion Experience: Health Systems. 4 Credits.
This course builds on foundational knowledge and skills gained during previous Immersion Experiences. Students will engage in a systems-based approach to quality improvement processes, develop practice management skills related to the medication use process, and develop skills in pharmacy practice in a value-based health care system.
Requisites: Prerequisite, PY4 Standing.

PHCY 893. Advanced Immersion Experience: Ambulatory Care. 4 Credits.
This course builds on foundational knowledge and skills gained during previous Immersion Experiences. Students will refine skills in applying a consistent approach to patient care, as exemplified in the Pharmacists' Patient Care Process, by considering management of the entire patient or focusing on a single medical condition.
Requisites: Prerequisite, PY4 Standing.

PHCY 894. Advanced Immersion Experience: General Medicine. 4 Credits.
This course builds on foundational knowledge and skills gained during previous Immersion Experiences. Students will refine skills in applying a consistent approach to patient care, as exemplified in the Pharmacists' Patient Care Process, by considering management of the entire patient in an inpatient setting.
Requisites: Prerequisite, PY4 Standing.

PHCY 895. Advanced Immersion Experience: Clinical I. 4 Credits.
This course builds on foundational knowledge/skills gained during previous Immersion Experiences. Students will apply a consistent approach to patient care, as exemplified in the Pharmacists' Patient Care Process, by considering management of the entire patient or focusing on a single medical condition (inpatient or outpatient setting).
Requisites: Prerequisite, PY4 Standing.

PHCY 896. Advanced Immersion Experience: Clinical II. 4 Credits.
This course builds on foundational knowledge/skills gained during previous Immersion Experiences. Students will apply a consistent approach to patient care, as exemplified in the Pharmacists' Patient Care Process, by considering management of the entire patient or focusing on a single medical condition (inpatient or outpatient setting).
Requisites: Prerequisite, PY4 Standing.

PHCY 897. Advanced Immersion Experience: Clinical III. 4 Credits.
This course builds on foundational knowledge/skills gained during previous Immersion Experiences. Students will apply a consistent approach to patient care, as exemplified in the Pharmacists' Patient Care Process, by considering management of the entire patient or focusing on a single medical condition (inpatient or outpatient setting).
Requisites: Prerequisite, PY4 Standing.

PHCY 898. Leading Change in Health Care I. 1 Credit.
This course is designed to build from foundational knowledge/skills gained during previous Immersion Experiences and coursework. Student Pharmacists will demonstrate advanced skills in critical literature appraisal and presentation, apply quality improvement methodologies to problems in pharmacy, and demonstrate understanding of pharmacy administration and healthcare policy fundamentals.
Requisites: Prerequisite, PY4 Standing.

PHCY 899. Leading Change in Health Care II. 1 Credit.
This course is designed to build from foundational knowledge/skills gained during previous Immersion Experiences and coursework. Student Pharmacists will demonstrate advanced skills in critical literature appraisal and presentation, apply quality improvement methodologies to problems in pharmacy, and demonstrate understanding of pharmacy administration and healthcare policy fundamentals.
Requisites: Prerequisite, PY4 Standing.

Pharmaceutical Sciences (PHRS)

Graduate-level Courses

PHRS 801. Foundations for Cross-Disciplinary Training in the Pharmaceutical Sciences. 1.25 Credit.
This is a required course for first year pharmaceutical sciences graduate students. Students participate on cross-discipline teams to discuss topics in three foundational areas essential to their development as pharmaceutical scientists: research ethics which meets RCR training requirements; leading research articles within five areas of pharmaceutical sciences; and professional development.
Grading status: Letter grade.

PHRS 899. Seminar in Pharmaceutical Sciences. 1 Credit.
This course is required for all Pharmaceutical Sciences graduate students. Other students must obtain permission from the divisional course director. Class format consists of seminar presentations by students and/or faculty or invited speakers. Students are expected to actively engage in seminar activities and discussions.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PHRS 990. Practicum in Pharmaceutical Sciences. 1-9 Credits.
Enrollment in this variable credit course requires a signed agreement between the Chair of the student's academic division and a representative of the institutional sponsor providing the research practicum. Teaching/learning methods consist of a pharmaceutical sciences-based research training experience at the participating institution involving independent work and written and oral reports.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PHRS 991. Research in Pharmaceutical Sciences. 1-9 Credits.
This is a variable credit course required for all Pharmaceutical Sciences graduate students by their second semester. Teaching/learning methods consist of a pharmaceutical sciences-based mentored research training experience involving independent work and research reports that must be filed at the end of the semester.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PHRS 992. Master's (Non-Thesis). 3 Credits.
Students register for thesis substitute credits after successfully passing their comprehensive written examinations. A minimum of 3 credit hours of thesis substitute research and writing is required for Pharmaceutical Sciences graduate students.
Requisites: Prerequisite, PHRS 991 or equivalent.
Repeat rules: May be repeated for credit.

PHRS 993. Master's Research and Thesis. 3 Credits.
Students register for thesis credits after successfully passing their comprehensive written examination. A minimum of 3 credit hours of thesis research and writing is required for Pharmaceutical Sciences graduate students.
Requisites: Prerequisite, PHRS 991 or equivalent.
Repeat rules: May be repeated for credit.

PHRS 994. Doctoral Research and Dissertation. 3 Credits.
Students register for dissertation credits after successfully passing their qualifying preliminary and oral examinations. A minimum of 6 credit hours of dissertation research and writing is required for Pharmaceutical Sciences graduate students.
Requisites: Prerequisite, PHRS 991 or equivalent.
Repeat rules: May be repeated for credit.

Pharmacy Practice and Experiential Education (DPPE)

Graduate-level Courses

DPPE 801. Perspectives in Public Health. 3 Credits.
Examines the scope and implications of current public health concerns at the community, state and national level. Includes practical approaches to the integration of public health activities into the community.
Grading status: Letter grade.

DPPE 807. Pharmaceutical Approaches to ID Therapy. 2 Credits.
Same course as DPET 807. Instructor moved to different division in Eshelman School of Pharmacy
Grading status: Letter grade.

DPPE 810. Institutional Pharmacy. 3 Credits.
Same course as DPET 801. Instructor moved to different division in Eshelman School of Pharmacy
Grading status: Letter grade.

DPPE 899. Seminar in DPPE. 1 Credit.
Seminar in DPPE
Grading status: Letter grade.

DPPE 991. Research in DPPE. 1-9 Credits.
DPPE research is aimed at helping students develop necessary research skills, while exposing students to relevant issues, processes, investigations, and unanswered questions in pharmacy practice.
Grading status: Letter grade.

DEPARTMENT OF PHILOSOPHY (GRAD)

Contact Information

Department of Philosophy
Visit Program Website (http://philosophy.unc.edu)
Caldwell Hall, 240 East Cameron Ave., CB# 3125
(919) 962-7291

Marc Lange, Chair
mlange@email.unc.edu

Alan Nelson, Director of Graduate Studies
anelson@unc.edu

The graduate program in philosophy is designed to equip students to engage with both perennial and cutting-edge philosophical enquiry. The program is intended to prepare students for college and university positions in philosophy.

The Department of Philosophy offers a program of study leading to the Ph.D. in philosophy. Prerequisite for admission to graduate work in the department is a B.A. degree or equivalent, typically with a major in philosophy, with a broad range of courses. Students earn an M.A. as part of the Ph.D. program.

The department offers several nonservice fellowships. These include the Graham Kenan Fellowship and the Horace Williams, Mary Taylor Williams, and Bertha Colton Williams Fellowships. The department has available teaching assistantships with stipends of over $15,000. In addition, several kinds of UNC—Chapel Hill fellowships and teaching assistantships are available, some from The Graduate School (https://gradschool.unc.edu/funding/gradschool/fellowshipsandgrants.html) and others from the department. Total financial support per year (including income from summer teaching) currently ranges from $22,300 to $31,000 (for a student who wins The Graduate School's highly competitive five-year fellowship (https://gradschool.unc.edu/funding/gradschool/roysterfellowship.html)), along with full tuition and health insurance. Please refer to the funding section of the department's Web site (http://philosophy.unc.edu/graduate/funding) for up-to-date information about graduate support.

The department maintains close relations with the Department of Philosophy at Duke University (https://philosophy.duke.edu). Graduate students from either institution may register for credit in graduate courses or seminars at the other institution and may include faculty members from either on their dissertation committees. Library facilities are available to students at each institution.

Candidates for the master's degree must satisfactorily complete 30 semester hours of graduate work. They are normally required to participate in a first-year program including PHIL 700 and PHIL 455/LING 455; there may be adjustments with the consent of the department. Successfully completing an M.A. thesis is a condition for receiving the degree of master of arts.

Candidates for the doctoral degree must satisfactorily complete 60 semester hours of graduate work, including six hours of Ph.D. dissertation credit.

The candidate for the degree of doctor of philosophy must pass two examinations. First, there is the Admission to Candidacy examination, which itself has two parts: a written general portion and a special oral portion. The written portion, normally taken in the spring term of the third year, is in the student's field of specialization. The oral portion tests the feasibility of the dissertation proposal and is normally taken in the fall term of the fourth year. Second, there is an oral defense of the completed dissertation. For further details on degree requirements, see The Graduate School Handbook (https://gradschool.unc.edu/handbook).

More information about the philosophy graduate program may be found on the department's Web site (http://philosophy.unc.edu).

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Distinguished Professors

Marc Lange (44), Philosophy of Science, Metaphysics, Epistemology
C. D. C. Reeve (39), Ancient Philosophy, Metaphysics, Moral Psychology, Ethics
Geoffrey Sayre-McCord (25), Moral Theory, Metaethics, Epistemology, History of Modern Philosophy
Susan Wolf (40), Moral Theory and Moral Psychology

Distinguished Research Professors

Simon Blackburn (28), Philosophy of Mind, Philosophy of Language, Philosophy of Psychology, Metaethics
Geoffrey Brennan (23), Political Philosophy, Economics, Rationality

Professors

Luc Bovens (52), Philosophy and Public Policy, Rationality, Moral Psychology, Formal Epistemology **Thomas Hofweber (42),** Metaphysics, Philosophy of Language, Epistemology, Philosophy of Mathematics **Mariska Leunissen (41),** Ancient Philosophy, Philosophy of Science **Douglas MacLean (38),** Moral Theory, Social and Political Philosophy **Alan Nelson (36)**, History of Modern Philosophy **Ram Neta (43),** Epistemology, Philosophy of Mind **John T. Roberts (37),** Philosophy of Science, Philosophy of Physics, Metaphysics **Gillian Russell (48),** Philosophy of Language, Logic, Epistemology
Sarah Stroud (54), Moral Theory, Moral Psychology, Metaethics, Philosophy of Action

Associate Professors

Tom Dougherty (55)
Matthew Kotzen (46), Epistemology, Philosophy of Science
Jennifer Morton (56)

Assistant Professors

Markus Kohl (51), History of Modern Philosophy, History of Ancient Philosophy, Moral Psychology, Existentialism
Carla Merino-Rajme (47), Metaphysics, Philosophy of Mind
Alexander Worsnip (50), Epistemology, Metaethics, Theory of Rationality

Adjunct Professors

James Lesher (21), Ancient Greek Philosophy
Rebecca Walker (53), Bioethics, Ethical Theory

Professors Emeriti

Bernard Boxill Thomas E. Hill Jr. Douglas C. Long William G. Lycan Stanley Munsat Gerald J. Postema Michael D. Resnik Robert D. Vance

PHIL

Advanced Undergraduate and Graduate-Level Courses

PHIL 411. Aristotle. 3 Credits.
An examination of some representative works of Aristotle, with reference to common emphases and basic problems, together with an analysis of their philosophic content.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 412. Plato. 3 Credits.
An examination of some representative works in the context of contemporary scholarship.
Gen Ed: WB.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 415. Medieval Philosophy. 3 Credits.
An intensive study of some medieval philosophical author (e.g., Aquinas, Scotus, or Ockham) or topic (e.g., arguments for the existence of God, universals, knowledge of individuals).
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 421. Rationalism. 3 Credits.
An in-depth study of such rationalist philosophers as Descartes, Spinoza, and Leibniz.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 422. Empiricism. 3 Credits.
An in-depth study of such empiricist philosophers as Locke, Berkeley, and Hume.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 423. Kant's Theoretical Philosophy. 3 Credits.
An intensive introduction to Kant's accounts of space, time, concepts, perception, substance, causation, and the thinking self through a careful study of his masterwork, The Critique of Pure Reason.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 424. Kant's Practical Philosophy. 3 Credits.
This course studies closely Kant's practical philosophy, dedicated to understanding and assessing the answers that Kant gives to classic questions of practical philosophy, such as: What does morality demand from us? What is the morally right course of action? Is morality objective? Do moral norms depend on God?
Gen Ed: PH.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 427. Hegel. 3 Credits.
In-depth study of Hegel's systematic philosophy emphasizing its roots in Kant's critical philosophy. Primary focus on Phenomenology of Spirit, supplemented by selections from the Encyclopedia and Philosophy of Right.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 428. History of American Philosophy. 3 Credits.
An in-depth study of American contributions to philosophy, including for example the transcendentalists, the pragmatists, Quine, Rorty, and others.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 432. The Beginnings of Analytic Philosophy. 3 Credits.
Two courses in philosophy other than PHIL 155 strongly recommended. Frege, Russell, Moore, and Wittgenstein among others are considered.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 433. Current Issues in Analytic Philosophy. 3 Credits.
Two courses in philosophy other than PHIL 155 strongly recommended. Recent work in epistemology and metaphysics.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

PHIL 440. Philosophy of Mind. 3 Credits.
At least two courses in philosophy other than PHIL 155, including PHIL 340, strongly recommended. An examination of dualism, behaviorism, the identity theory, and forms of functionalism with special focus on the problems of mental aboutness and the problems of consciousness.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 445. Advanced Philosophy of Language. 3 Credits.
At least two courses in philosophy other than PHIL 155, including PHIL 345, strongly recommended. A study of important contemporary contributions in philosophy of language. Topics include meaning, reference, and truth.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: LING 410, LING 445.

PHIL 450. Philosophy of Natural Sciences. 3 Credits.
An in-depth survey of general issues in contemporary philosophy of natural science intended for advanced philosophy students. Topics include confirmation, explanation, theory-choice, realism, reduction.
Gen Ed: PH.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 451. Philosophy of Physics. 3 Credits.
Topics may include the nature of space and time, the ontological status of fields and energy, or causation and locality in quantum physics.
Gen Ed: PL.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 452. Philosophy of Biology. 3 Credits.
The logical structure of evolutionary theory, fitness, taxonomy, the notion of a living thing, reductionism, evolutionary explanations, teleology.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 453. Philosophy of Psychology. 3 Credits.
Topics may include reasoning, the relationship between language and thought, concepts, moral cognition, and emotions.
Gen Ed: SS.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 454. Philosophy, History, and the Social Sciences. 3 Credits.
The nature of historical explanation, structural and functional explanation, the weighing of historical testimony, the concept of meaning, normative judgments and predictions in the social sciences.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 455. Symbolic Logic. 3 Credits.
Introduction for graduates and advanced undergraduates.
Gen Ed: QR.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: LING 455.

PHIL 456. Advanced Symbolic Logic. 3 Credits.
Presupposes propositional and quantificational logic as a basis of further deductive development with special attention to selected topics: alternative systems, modal and deontic logic, inductive logic, the grammar of formalized languages, paradoxes, and foundations of mathematics.
Requisites: Prerequisite, PHIL 455.
Gen Ed: QI.
Repeat rules: May be repeated for credit. 12 total credits. 4 total completions.
Grading status: Letter grade.

PHIL 457. Set Theory and Logic. 3 Credits.
Natural and real numbers. Infinite cardinal and ordinal numbers. Alternative axiom systems and their consistency problems.
Requisites: Prerequisite, PHIL 455; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 459. Philosophy of Mathematics. 3 Credits.
Philosophical problems concerning logic and the foundation of mathematics.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 460. History of Moral Philosophy. 3 Credits.
Examination of classic texts of Plato, Aristotle, Aquinas, Hobbes, Butler, Hume, Kant, and Mill. Selections may vary from year to year.
Requisites: Prerequisite, Two courses in philosophy other than PHIL 155, including PHIL 360, strongly recommended.
Gen Ed: PH.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 462. Contemporary Moral Philosophy. 3 Credits.
Advanced discussion of moral issues such as fact and value, reason and morality, the nature of morality.
Requisites: Prerequisite, two courses in philosophy other than PHIL 155, including PHIL 362.
Gen Ed: PH.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

PHIL 463. Contemporary Moral and Social Problems. 3 Credits.
Two courses in philosophy other than PHIL 155 strongly recommended. A detailed examination of one or more of the following contemporary issues: environmental ethics, animal rights, abortion, euthanasia, pornography, racism, sexism, public versus private morality.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 465. Justice in Health Care. 3 Credits.
One course in philosophy strongly recommended. Medical students welcome. The course will focus on the question of how scarce health care resources ought to be distributed in order to meet the demands of justice.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 468. Risk and Society. 3 Credits.
One additional course in philosophy strongly recommended. The course examines attitudes toward risk and how they affect our preferences for different public policies in the areas of environmental protection, technology regulation, and workplace and product safety.
Requisites: Prerequisite, PHIL 155.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 470. Political Philosophy from Hobbes to Rousseau. 3 Credits.
Two courses in philosophy other than PHIL 155, including PHIL 170 or 370, strongly recommended. Explores the foundations of justice and authority in the idea of contract or covenant, the nature of law, rights, liberty, and democracy in the work of Hobbes, Locke, Hume, Rousseau.
Gen Ed: PH.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 471. Hegel, Marx, and the Philosophical Critique of Society. 3 Credits.
An examination of central issues in social and political philosophy as they figure in the work of Hegel, Marx, Nietzsche, and others.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 473. American Political Philosophy. 3 Credits.
One course in philosophy other than PHIL 155 strongly recommended. Juniors and seniors only. The issue of unity and diversity in America is analyzed through the writings of Jefferson, the Federalists and Anti-Federalists, Calhoun, MacKinnon, DuBois, and Rawls.
Gen Ed: US.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 474. Foundations of Modern Political Philosophy. 3 Credits.
This course traces the emergence and development of central themes of modern political philosophy from the 13th through the 17th century.
Requisites: Prerequisite, PHIL 170.
Gen Ed: PH.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 475. Philosophical Issues in Gender, Race, and Class. 3 Credits.
Examines in greater depth and complexity one or more of the issues addressed in PHIL 275, investigating issues of gender, race, and class within the dominant theories of philosophy.
Requisites: Prerequisite, PHIL 275 or WGST 101.
Gen Ed: US.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: WGST 475.

PHIL 476. Recent Developments in Political Philosophy. 3 Credits.
Two courses in philosophy other than PHIL 155, including PHIL 370, strongly recommended. Investigation of major contemporary contributors (Rawls, Nozick, Dworkin, Cohen, Waldron, Arrow) to philosophical debate concerning justice, equality, liberty, democracy, public reason, or rights versus community.
Gen Ed: PH.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

PHIL 480. Philosophy of Law. 3 Credits.
An exploration of whether and under what conditions the state has the right to control crime by punishment of past crimes and preventive detention to prevent future crimes.
Gen Ed: PH.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 482. Philosophy and Literature. 3 Credits.
Philosophical readings of literary texts, including novels, plays, and poems.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: CMPL 482.

PHIL 485. Philosophy of Art. 3 Credits.
Competing theories of art and art criticism. The relationship between art and emotional expression, the formal character of art, and standards of taste.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 491. Health Care, Science, and Philosophy. 3 Credits.
Interdisciplinary course to develop critical thinking capacities through philosophical study of the nature of scientific presuppositions and concepts, including events, causality, and determinism, with specific application to health care issues.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 494. Existentialism and Phenomenology. 3 Credits.
A study of one or two major systematic works by Sartre, Heidegger, or Merleau-Ponty.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PHIL 496. Advanced Directed Studies. 1-3 Credits.
Permission of the director of undergraduate studies. Advanced independent work in philosophy.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

PHIL 562. Ethics, Responsibility, and Justice. 1 Credit.
Ethics explores obligations to act in the interest of others as well as ourselves. Justice explores the ways people should organize and govern themselves. Course addresses such questions as, What principles govern our relationships with other people? What do we owe others and ourselves? How should we treat other people?
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Pass/Fail.

PHIL 691H. Courses for Honors. 3 Credits.
Permission of the director of undergraduate studies. See the director of undergraduate studies of the department.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

PHIL 692H. Courses for Honors. 3 Credits.
Permission of the director of undergraduate studies. See the director of undergraduate studies of the department.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

PHIL 698. Philosophy, Politics, and Economics: Capstone Course. 3 Credits.
Permission of the department. This capstone course advances PHIL 384, focusing on such theoretical and philosophical issues as the analysis of rights or distributive justice and the institutional implications of moral forms.
Requisites: Prerequisite, PHIL 384.
Grading status: Letter grade
Same as: ECON 698, POLI 698.

Graduate-Level Courses

PHIL 700. Proto-Seminar in Philosophy. 3 Credits.

PHIL 705. Advanced Studies in Systematic Philosophy. 3 Credits.

PHIL 710. Advanced Studies in Ancient Philosophy. 3 Credits.

PHIL 715. Advanced Studies in Medieval Philosophy. 3 Credits.

PHIL 720. Advanced Studies in Modern Philosophy. 3 Credits.

PHIL 725. Advanced Studies in 19th-Century Philosophy. 3 Credits.

PHIL 730. Advanced Studies in Metaphysics. 3 Credits.

PHIL 735. Advanced Studies in Epistemology. 3 Credits.

PHIL 740. Advanced Studies in Philosophy of Mind. 3 Credits.

PHIL 745. Advanced Studies in Philosophy of Language. 3 Credits.

PHIL 750. Advanced Studies in Philosophy of Science. 3 Credits.

PHIL 755. Advanced Studies in Philosophy of Logic. 3 Credits.

PHIL 760. Advanced Studies in Moral Theory. 3 Credits.

PHIL 765. Advanced Studies in Value Theory. 3 Credits.

PHIL 770. Advanced Studies in Political Philosophy. 3 Credits.

PHIL 775. Advanced Studies in Feminism. 3 Credits.

PHIL 780. Advanced Studies in Philosophy of Law. 3 Credits.

PHIL 785. Advanced Studies in Philosophy, Politics, and Economics. 3 Credits.
This course provides Philosophy graduate students with the background to teach PPE courses. It covers core ideas in Economics and Political Science, Rationality, the Market, Inequality, Causal Inference, with the aim of analyzing social problems in PPE style.
Grading status: Letter grade.

PHIL 790. Colloquium Series Seminar. 3 Credits.

PHIL 800. Pre-Dissertation Seminar in Philosophy. 3 Credits.

PHIL 805. Research Seminar in Systematic Philosophy. 3 Credits.

PHIL 810. Research Seminar in Ancient Philosophy. 3 Credits.

PHIL 815. Research Seminar in Medieval Philosophy. 3 Credits.

PHIL 820. Research Seminar in Modern Philosophy. 3 Credits.

PHIL 825. Research Seminar in 19-Century Philosophy. 3 Credits.

PHIL 830. Research Seminar in Metaphysics. 3 Credits.

PHIL 835. Research Seminar in Epistemology. 3 Credits.

PHIL 840. Research Seminar in Philosophy of Mind. 3 Credits.

PHIL 845. Research Seminar in Philosophy of Language. 3 Credits.

PHIL 850. Research Seminar in Philosophy of Science. 3 Credits.

PHIL 855. Research Seminar in Philosophy of Logic. 3 Credits.

PHIL 860. Research Seminar in Moral Theory. 3 Credits.

PHIL 865. Research Seminar in Value Theory. 3 Credits.

PHIL 870. Research Seminar in Political Philosophy. 3 Credits.

PHIL 880. Research Seminar in Philosophy of Law. 3 Credits.

PHIL 901. Readings in Philosophy. 3 Credits.

PHIL 990. Current Research Group Seminar. 3 Credits.

PHIL 993. Master's Research and Thesis. 3 Credits.

PHIL 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF PHYSICS AND ASTRONOMY (GRAD)

Contact Information

Department of Physics and Astronomy
Visit Program Website (http://www.physics.unc.edu)

Christian Iliadis, Chair

The Department of Physics and Astronomy offers graduate work leading to the degrees of master of science and doctor of philosophy.

The active fields of research are biophysics, medical physics, condensed-matter physics, materials physics, nanotechnology, nuclear physics, neutrino physics and nuclear astrophysics, quantum field theory, theoretical particle physics, general relativity and gravitation, extragalactic and stellar astronomy, and astrophysics. Students can also work in the UNC–Chapel Hill biophysics program, or they can study under any advisor so long as the research project is supervised by a committee that contains a majority of UNC–Chapel Hill Department of Physics and Astronomy faculty members. The graduate courses are designed to give students a broad foundation and to introduce them to the special fields in which the research interests of the department lie.

The general regulations of The Graduate School govern the work for the degrees of master of science and doctor of philosophy. To begin a graduate program in physics or astrophysics, the student should have completed most of the requirements for the degree of bachelor of science with a major in physics at the University, or their equivalent elsewhere. The minimum prerequisite for graduate study consists of the basic undergraduate courses:

Code	Title	Hours
PHYS 118	Introductory Calculus-based Mechanics and Relativity	4
PHYS 119	Introductory Calculus-based Electromagnetism and Quanta	4
PHYS 128L	Modern Physics Laboratory	1
PHYS 311	Electromagnetism I	3
PHYS 401	Mechanics I	3
PHYS 412	Electromagnetism II	3
PHYS 421	Introduction to Quantum Mechanics	3
PHYS 441	Thermal Physics	3
PHYS 521	Applications of Quantum Mechanics	3
Together with the following courses:		
MATH 232	Calculus of Functions of One Variable II [H]	4
MATH 233	Calculus of Functions of Several Variables [H]	4
MATH 528	Mathematical Methods for the Physical Sciences I	3
Total Hours		38

[H] Honors version available. An honors course fulfills the same requirements as the nonhonors version of that course. Enrollment and GPA restrictions may apply.

Research Interests

Astronomy and Astrophysics

Research includes the formation, structure, and evolution of stars, our Milky Way galaxy, evolution and dynamics of galaxies, gamma ray bursters, cosmology, numerical relativity and sources of gravitational radiation, stellar seismology and quasars, exo-planets, and interstellar medium physics. UNC–Chapel Hill has guaranteed observing time on the 4.1-meter SOAR Telescope in Chile and on the 11-meter SALT Telescope in South Africa. UNC–Chapel Hill operates a number of smaller robotic telescopes as well and maintains multiple astronomical instrumentation laboratories dedicated to adaptive optics and state-of-the-art spectroscopy.

Biological and Medical Physics

Experimental studies include manipulation and force measurement techniques with applications to DNA, molecular motors, cells, and cilia, and hydration effects in adsorption of biochemicals. There is also a strong focus on the theoretical and experimental translational research in medical imaging technologies, including radiotherapy instruments based on carbon nanotube X-ray emitters such as single-cell irradiation and in vivo micro-CT; optical coherence tomography with nanoparticle molecular imaging agents; and systems-level implementation of tomographic imaging instruments.

Condensed-Matter Physics

Experimental and theoretical studies of nanomaterials. Atomic scale studies of devices and nanoelectromechanical systems, including quantum computation and transport, actuating nanomotors and sensors, amorphous materials, semiconductors, superconductors, the optical properties of solids, charge transport in solids and fluids, epitaxial growth, magnetic materials and heterostructures.

Field Theory, Particle Physics, Cosmology, Gravitation and Relativity

Research includes gauge field theories, quantum chromodynamics, electroweak theory, grand unified theories, string theory, supersymmetry, supergravity, quantum gravity, theoretical cosmology, numerical relativity, gravitational radiation, and relativistic astrophysics.

Materials Science and Materials Physics

Experimental and theoretical research in the design, synthesis, integration, and characterization of novel solid state materials, including nanostructured materials such as quantum dots, carbon nanotubes and nanorods, quasi-crystals, and metallic glass. Applications of novel materials for solar energy, electron field emission, probes and sensors, and data storage. Applications include flat-panel displays, an X-ray system for biomedical imaging, and rechargeable batteries.

Nuclear Physics

Experimental and theoretical work includes neutrino oscillations and neutrino mass measurements, fundamental symmetries and weak interactions in supernovae. The structure and evolution of stars are investigated using nuclear probes. The origin of the elements in the universe is studied using local accelerator facilities. The nature of the nuclear force and properties of few-body systems. Polarized beams of light ions and gamma-rays and polarized 3He target. Applied nuclear physics.

Facilities and Equipment

Research in physics and astronomy is carried out in laboratories on and off the Chapel Hill campus. Within Phillips Hall and Chapman Hall there are several major research laboratories including the "nanomanipulator" (a combination of a scanning electron microscope, an atomic force microscope, and sophisticated visualization graphics); the Keck Laboratory for Atomic Imaging and Manipulation, which includes two transmission electron microscopes; and the Goodman Laboratory for Astronomical Instrumentation. Other facilities include apparatus for nuclear magnetic resonance studies, scanning probe microscopes, and Raman and optical spectrometers. For synthesis and fabrication, major facilities include molecular beam epitaxy, microwave plasma-enhanced chemical vapor deposition, laser ablation, and photolithography and reactive ion etching. Resources for highly parallel computing are provided by UNC's Information and Technology Services as well as by national centers.

The department is a partner in the Triangle Universities Nuclear Laboratory and plays a major role in experiments using the Laboratory for Experimental Nuclear Astrophysics (LENA), Tandem Accelerator, and the High-Intensity Gamma-Ray Source at the Free Electron Laser facility. UNC–Chapel Hill has an active program in low-background physics at the KURF underground facility near Blacksburg, VA. UNC–Chapel Hill has a 0.6-meter on-campus telescope and is a major partner in the 4.1-meter SOAR Telescope in Chile and the 11-meter Southern African Large Telescope (SALT) in South Africa. The department operates the PROMPT array of robotic telescopes in Chile and manages the SkyNet array of robotic telescopes. Numerous national laboratories, including Oak Ridge, Brookhaven, NIST, Los Alamos, and Argonne, as well as KamLAND, NRAO, NOAO, the Hubble Space Telescope, and the Chandra X-ray Observatory are also vital parts of our research efforts.

Fellowships and Assistantships

Teaching Assistantships (with stipends of $17,160 for nine months) are available to qualified graduate students. Summer employment is usually available. The duties of assistants include supervising laboratory classes in elementary physics or astronomy, assisting in the supervision of advanced laboratories, teaching recitation sections, and grading papers. Graduate School fellowships are available for well-qualified applicants to the department's graduate program. Graduate students can usually be supported in the summer by teaching or research.

Research assistantships are also offered, especially to those who have completed a year or two of graduate work. The stipend is at least $22,881 for the calendar year.

Application forms for admission, including graduate appointments, should be completed online (http://gradschool.unc.edu/admissions).

The M.S. degree in physics may be taken with or without a thesis. However, even if a thesis is not submitted, a student must work with a research group for at least one semester in order to learn the research techniques in a field of physics or astronomy. If the research is theoretical, the student must also gain experimental experience for at least one semester. A minor is not required for the M.S. degree, but one may be chosen in accord with the regular graduate requirements for this option. The equivalent of one semester of teaching experience is required of all M.S. degree candidates. The M.S. astrophysics track must include the following courses:

Code	Title	Hours
ASTR 701	Stellar Interiors, Evolution, and Populations	3
and a minimum of six hours from:		6
ASTR 519	Observational Astronomy	
ASTR 702	High Energy Astrophysics	
ASTR 703	Structure and Evolution of Galaxies	
ASTR 704	Cosmology	
Total Hours		9

The requirements for a Ph.D. in the Department of Physics and Astronomy are as follows:

a. Successful completion of the following core courses in the department, or completion of their equivalents elsewhere as an undergraduate or graduate student:

Code	Title	Hours
PHYS 701	Classical Dynamics	3
PHYS 711	Electromagnetic Theory I	3
PHYS 721	Quantum Mechanics	3
PHYS 741	Statistical Mechanics	3
and two of the four courses:		6
PHYS 712	Electromagnetic Theory	
PHYS 722	Quantum Mechanics	
ASTR 701	Stellar Interiors, Evolution, and Populations	
ASTR 704	Cosmology	
or an approved subsitute		
Total Hours		18

b. Passing the Ph.D. written examination based on core graduate courses in (a) taken by that student
c. Gaining experimental experience either through master's or doctoral research, or (if the student's research is theoretical) by performing an experimental project deemed adequate by the director of graduate studies
d. Passing at least three other advanced graduate-level courses that have been approved by the director of graduate studies

A Ph.D. candidate is also expected to take a preliminary doctoral oral examination within the first three years of graduate study in physics at UNC–Chapel Hill. The oral examination is concerned mainly with the student's dissertation research project. A minor is not required but may be elected, in which case requirement c) above is replaced by the requirement that the student pass at least five graduate-level courses selected from no more than two departments, with no fewer than two courses in either department. The minor program must be approved in advance by the minor department. Teaching experience as part of professional training is required of all doctoral candidates. This experience can be gained through laboratory or lecture instruction as a teaching assistant, either for two semesters or until teaching competence is acquired.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Gerald N. Cecil (47), Experimental Astrophysics

Arthur E. Champagne (51), Experimental Nuclear Physics and Astrophysics
J. Christopher Clemens (64), Observational Astronomy, Astrophysics, Astronomical Instrumentation
Louise A. Dolan (49), Theoretical Particle Physics, Quantum Gravity
Jonathan Engel (57), Theoretical Nuclear Physics
Charles R. Evans (48), Gravity, Relativity, Theoretical Astrophysics
Christian G. Iliadis (61), Experimental Nuclear Astrophysics
Hugon J. Karwowski (37), Experimental Nuclear Physics and Astrophysics
Dmitri V. Khveshchenko (1), Theoretical Physics
Jianping Lu (56), Condensed Matter Theory, Nanotechnology, Medical Physics
Laurie E. McNeil (36), Experimental Condensed Matter and Materials Physics
Y. Jack Ng (30), Theoretical Particle Physics, Gravitation
Lu-Chang Qin (27), Materials Science, Nanotechnology
Daniel E. Reichart (13), Gamma Ray Bursts, Early Universe, Interstellar Extinction, Galaxy Clusters
Richard Superfine (55), Experimental Studies of Interfaces, Biophysics
Frank Tsui (59), Experimental Condensed Matter and Materials Physics
Sean Washburn (50), Experimental Condensed Matter and Materials Physics
John Wilkerson, (12), Experimental Neutrino Physics and Fundamental Symmetries
Yue Wu (54), Nuclear Magnetic Resonance, Electron Spin Resonance in Solids
Otto E. Zhou (62), Materials Science, Nanotechnology

Associate Professors

Fabian Heitsch (26), Computational Astrophysics
Reyco Henning (11), Neutrino Physics, Particle Astrophysics
Sheila Kannappan (14), Observational Extragalactic Astronomy
Rene Lopez (25), Experimental Condensed Matter Physics
Laura Mersini (19), Theoretical Cosmology
Amy Oldenburg, Biophotonics and Biomechanics

Assistant Professors

Rosa Tamara Branca, NMR Imaging
Joaquin Drut, Theory of Strongly Interacting Systems
Adrienne Erickcek, Theoretical Astrophysics and Cosmology
Jonathan Heckman, Theoretical Physics, String Theory, F Theory
Nicholas Law, Astrophysics

Lecturers

Alice Churukian, UNC–BEST, Physics Education Research
Duane Deardorff, Lab Director, Physics Education Research
Colin Wallace, Physics Education Research

Research Professors

Michael R. Falvo, Biophysics, Nanomechanics
Alfred Kleinhammes, Condensed Matter Physics, Materials Science

Research Associate Professor

E. Timothy O'Brien, Physics Related to Biology, Light Microscopy, Biological Sample Preparation

Research Assistant Professor

David B. Hill, Biophysics

Adjunct Professors

Sha X. Chang, Medical Physics
Richard T. Hammond, General Relativity, Gravity, Optics
David Radford, Nuclear Physics
Ryan M. Rohm, Quantum Field Theory, Theoretical Particle Physics
Jie Tang, Materials Physics, Nanomaterials

Adjunct Assistant Professor

Yueh Lee, Medical Physics

Professors Emeriti

C. Victor Briscoe
Bruce W. Carney
Sang-Il Choi
Wayne Christiansen
Thomas B. Clegg
Kian S. Dy
John Hernandez
William M. Hooke
Paul S. Hubbard
Horst Kessemeier
Edward J. Ludwig
J. Ross Macdonald
Nalin R. Parikh
James Rose
Larry Rowan
Dietrich Schroeer
Stephen M. Shafroth
Lawrence M. Slifkin
William J. Thompson
James W. York Jr.

ASTR

Advanced Undergraduate and Graduate-level Courses

ASTR 501. Astrophysics I (Stellar Astrophysics). 3 Credits.
An introduction to the study of stellar structure and evolution. Topics covered include observational techniques, stellar structure and energy transport, nuclear energy sources, evolution off the main-sequence, and supernovae.
Requisites: Prerequisites, ASTR 202 or ASTR 301, MATH 383, and PHYS 331; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

ASTR 502. Astrophysics II (Modern Research in Astrophysics). 3 Credits.
An introduction to modern research in astrophysics based on scientific journal articles addressing a current topic of interest in galactic or extragalactic astrophysics, including training in computer modeling and statistical analysis, culminating in the completion of a research project.
Requisites: Prerequisites, ASTR 202 or ASTR 301, and MATH 383; pre- or corequisite, PHYS 331.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ASTR 503. Structure and Evolution of Galaxies. 3 Credits.
Overview of the structure and evolution of galaxies, with emphasis on learning and applying modern research methods such as scientific literature review and computational astrostatistics. Includes galaxy morphology and dynamics, star formation, active galactic nuclei, galaxy interactions, large-scale clustering, environment-dependent physical processes, and the evolution of the galaxy population over cosmic time.
Requisites: Prerequisites, ASTR 202 or ASTR 301, MATH 383, and PHYS 331.
Grading status: Letter grade.

ASTR 504. Cosmology. 3 Credits.
An introduction to modern cosmology: the study of the contents and evolution of the universe. Covers expanding spacetime, the thermal history of the early universe, including nucleosynthesis and the cosmic microwave background, the inflationary model for the origins of cosmic structure, and the growth of that structure through time.
Requisites: Prerequisites, ASTR 202 or ASTR 301, and PHYS 401; pre- or corequisite, PHYS 421.
Grading status: Letter grade.

ASTR 505. Physics of Interstellar Gas. 3 Credits.
Surveys the physical processes governing the interstellar medium (ISM), which takes up the "refuse" of old stars while providing fuel for young stars forming. Covers the processes regulating the galactic gas budget and the corresponding observational diagnostics. Topics: radiative transfer, line formation mechanisms, continuum radiation, gas dynamics, star formation.
Requisites: Prerequisites, ASTR 202 or ASTR 301, MATH 383, and PHYS 331.
Grading status: Letter grade.

ASTR 519. Observational Astronomy. 4 Credits.
An introduction to modern techniques in observational astronomy with an emphasis on optical and near-infrared wavelengths. Topics covered include celestial coordinates, practical python for astronomy, telescopes and CCDs, spectroscopy, astrostatistics, and mining large astronomical surveys. Three lecture and three laboratory hours a week.
Requisites: Prerequisite, ASTR 102 or 202; Pre- or corequisite, PHYS 331; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

Graduate-level Courses

ASTR 701. Stellar Interiors, Evolution, and Populations. 3 Credits.
Stellar structure and evolution, including equations of stellar structure, stellar models, star and planet formation, fusion and nucleosynthesis, stellar evolution, stellar remnants, and the comparison of theory to observations.
Grading status: Letter grade.

ASTR 702. High Energy Astrophysics. 3 Credits.
White dwarfs and neutron stars: physical properties and observational manifestations. Extragalactic radio sources, relativistic jets, and supermassive black holes. Particle acceleration and radiative processes in hot plasmas. Accretion phenomena. X-ray and gamma-ray astrophysics.
Requisites: Prerequisites, PHYS 711 and 721.
Grading status: Letter grade.

ASTR 703. Structure and Evolution of Galaxies. 3 Credits.
Overview of the structure and evolution of galaxies, with emphasis on learning and applying modern research methods such as scientific literature review and computational astrostatistics. Includes galaxy morphology and dynamics, star formation, active galactic nuclei, galaxy interactions, large-scale clustering, environment-dependent physical processes, and the evolution of the galaxy population over cosmic time.
Grading status: Letter grade.

ASTR 704. Cosmology. 3 Credits.
General relativity and cosmological world models; thermal history of the early universe, nucleosynthesis, and the cosmic microwave background; growth of structure through cosmic time.
Requisites: Co-requisite, PHYS 701.
Grading status: Letter grade.

ASTR 705. Physics of Interstellar Gas. 3 Credits.
Surveys the physical processes governing the interstellar medium (ISM), which takes up the "refuse" of old stars while providing fuel for young stars forming. Covers the processes regulating the galactic gas budget and the corresponding observational diagnostics. Topics: radiative transfer, line formation mechanisms, continuum radiation, gas dynamics, star formation.
Requisites: Prerequisites, PHYS 711 and 721.
Grading status: Letter grade.

ASTR 719. Astronomical Data. 4 Credits.
Required preparation, physics-based cosmology course or permission of the instructor. A course designed to familiarize the student with observational techniques in optical and radio astronomy, including application of photography, spectroscopy, photometry, and radio methods. Three lecture and three laboratory hours a week.
Grading status: Letter grade.

ASTR 891. Seminar in Astrophysics. 1-21 Credits.
Recent observational and theoretical developments in stellar, galactic, and extragalactic astrophysics.
Grading status: Letter grade.

PHYS

Advanced Undergraduate and Graduate-level Courses

PHYS 401. Mechanics I. 3 Credits.
permission of the instructor for students lacking the requisites.
Particle kinematics, central forces, planetary motions. Systems of particles, conservation laws, nonlinearity. Statics, motion of rigid bodies. Lagrange's and Hamilton's equations. Euler's equations. Vibrations and waves.
Requisites: Pre- or corequisites, MATH 383 and PHYS 331;
Grading status: Letter grade.

PHYS 405. Biological Physics. 3 Credits.
How diffusion, entropy, electrostatics, and hydrophobicity generate order and force in biology. Topics include DNA manipulation, intracellular transport, cell division, molecular motors, single molecule biophysics techniques, nerve impulses, neuroscience.
Requisites: Prerequisites, PHYS 116 and 117, or PHYS 118 and 119.
Grading status: Letter grade
Same as: BIOL 431, BMME 435.

PHYS 410. Teaching and Learning Physics. 4 Credits.
Learning how to teach physics using current research-based methods. Includes extensive fieldwork in high school and college environments. Meets part of the licensure requirements for North Carolina public school teaching.
Requisites: Prerequisites, PHYS 116 and 117, or PHYS 118 and 119; permission of the instructor for students lacking the prerequisites.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

PHYS 412. Electromagnetism II. 3 Credits.
Brief treatment of DC and AC circuit theory. Electrostatics: dielectrics; the magnetic field; magnetic materials. Maxwell's equations and their application to electromagnetic waves.
Requisites: Prerequisite, PHYS 311; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PHYS 421. Introduction to Quantum Mechanics. 3 Credits.
Origins of quantum theory. Uncertainty principle. Schroedinger equation for simple systems, including hydrogen atom. Perturbation theory. Spin. Identical particles. Previously offered as PHYS 321.
Requisites: Prerequisites, MATH 383; MATH 547 or PHYS 331; pre- or corequisite, PHYS 401; permission of the instructor for students lacking the requisites.
Grading status: Letter grade.

PHYS 422. Physics of the Earth's Interior. 3 Credits.
Origin of the solar system: the nebular hypothesis. Evolution of the earth and its accretionary history. Earthquakes: plate tectonics and the interior of the earth. The earth's magnetic field. Mantle convection.
Requisites: Prerequisites, MATH 383, and either PHYS 201 and 211 or 311 and 401.
Grading status: Letter grade
Same as: GEOL 422.

PHYS 424. General Physics I. 4 Credits.
This course is specifically for certification of high school teachers. Students may not receive credit for both PHYS 424 and PHYS 104 or 114.
Grading status: Letter grade.

PHYS 425. General Physics II. 4 Credits.
This course is specifically for certification of high school teachers. Students may not receive credit for both PHYS 425 and PHYS 105 or 115.
Grading status: Letter grade.

PHYS 441. Thermal Physics. 3 Credits.
Equilibrium statistical mechanics; the laws of thermodynamics, internal energy, enthalpy, entropy, thermodynamic potentials, Maxwell's equations.
Requisites: Prerequisites, MATH 233, and PHYS 117 or 119; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: BMME 441.

PHYS 447. Quantum Computing. 3 Credits.
Recommended preparation, some knowledge of basic linear algebra. An introduction to quantum computing. Basic math and quantum mechanics necessary to understand the operation of quantum bits. Quantum gates, circuits, and algorithms, including Shor's algorithm for factoring and Grover's search algorithm. Entanglement and error correction. Quantum encryption, annealing, and simulation. Brief discussion of technologies.
Requisites: Prerequisites, MATH 232, and PHYS 116 or 118.
Grading status: Letter grade
Same as: COMP 447.

PHYS 461. Introduction to Medical Physics. 3 Credits.
This class will introduce how physics principles and techniques have been applied to medical imaging and radiation therapy. Topics will include ionizing radiation and radiation safety, x-ray and computed tomography, ultrasound, magnetic resonance imaging, positron emission tomography, and radiation therapy. Topics such as the career path to become a medical physicist will also be discussed. The class will have lectures given by the instructor and guest lectures by experts and practitioners in this field.
Requisites: Prerequisite, PHYS 117 or 119.
Grading status: Letter grade.

PHYS 471. Physics of Solid State Electronic Devices. 3 Credits.
Properties of crystal lattices, electrons in energy bands, behavior of majority and minority charge carriers, PN junctions related to the structure and function of semiconductor diodes, transistors, display devices.
Requisites: Prerequisite, PHYS 117 or 119; pre- or corequisite, PHYS 211 or 311.
Grading status: Letter grade.

PHYS 472. Chemistry and Physics of Electronic Materials Processing. 3 Credits.
Permission of the instructor. A survey of materials processing and characterization used in fabricating microelectronic devices. Crystal growth, thin film deposition and etching, and microlithography.
Requisites: Prerequisite, CHEM 482 or PHYS 117 or 119.
Grading status: Letter grade
Same as: APPL 472, CHEM 472.

PHYS 481L. Advanced Laboratory I. 2 Credits.
Selected experiments illustrating modern techniques such as the use of laser technology to study the interaction of electromagnetic fields and matter. Six laboratory hours a week.
Requisites: Prerequisite, PHYS 351 or 352; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

PHYS 491L. Materials Laboratory I. 2 Credits.
Structure determination and measurement of the optical, electrical, and magnetic properties of solids.
Requisites: Prerequisites, APPL 470 and PHYS 351.
Grading status: Letter grade
Same as: APPL 491L.

PHYS 492L. Materials Laboratory II. 2 Credits.
Continuation of PHYS 491L with emphasis on low- and high-temperature behavior, the physical and chemical behavior of lattice imperfections and amorphous materials, and the nature of radiation damage.
Requisites: Prerequisite, APPL 491L or PHYS 491L.
Grading status: Letter grade
Same as: APPL 492L.

PHYS 510. Seminar for Physics and Astronomy Teaching Assistants. 1 Credit.
How students learn and understand physics and astronomy. How to teach using current research-based methods.
Grading status: Letter grade.

PHYS 515. Optics. 3 Credits.
Elements of geometrical optics; Huygens' principles, interference, diffraction, and polarization. Elements of the electromagnetic theory of light; Fresnel's equations, dispersion, absorption, and scattering. Photons. Lasers and quantum optics. Previously offered as PHYS 415.
Requisites: Prerequisites, PHYS 311 and 412; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

PHYS 521. Applications of Quantum Mechanics. 3 Credits.
Emphasizes atomic physics but includes topics from nuclear, solid state, and particle physics, such as energy levels, the periodic system, selection rules, and fundamentals of spectroscopy.
Requisites: Prerequisite, PHYS 421.
Grading status: Letter grade.

PHYS 543. Nuclear Physics. 3 Credits.
Structure of nucleons and nuclei, nuclear models, forces and interactions, nuclear reactions.
Requisites: Prerequisite, PHYS 421; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PHYS 545. Introductory Elementary Particle Physics. 3 Credits.
Relativistic kinematics, symmetries and conservation laws, elementary particles and bound states, gauge theories, quantum electrodynamics, chromodynamics, electroweak unification, standard model and beyond.
Requisites: Prerequisites, PHYS 412 and 421.
Grading status: Letter grade.

PHYS 573. Introductory Solid State Physics. 3 Credits.
Crystal symmetry, types of crystalline solids; electron and mechanical waves in crystals, electrical and magnetic properties of solids, semiconductors; low temperature phenomena; imperfections in nearly perfect crystals.
Requisites: Prerequisite, PHYS 421; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: APPL 573.

PHYS 581. Renewable Electric Power Systems. 3 Credits.
Broad and quantitative study of renewable electric power systems: wind systems, photovoltaic cells, distributed generation (concentrating solar power, microhydro, biomass), and the economics of these technologies.
Requisites: Prerequisites, BIOL 101L, and 202 or 271; and PHYS 131, and 131L or 281L, and 201 or 401, and 211 or 311, and 351; pre- or corequisites, CHEM 261 and 481.
Grading status: Letter grade.

PHYS 582. Decarbonizing Fuels. 3 Credits.
Assess quantitatively the feasibility of powering humanity without increasing release of climate-altering carbon dioxide and other organic greenhouse gases into the atmosphere. Can these gases be removed? Which bio-chemical-physical novelties may scale to meet growing demand and at what cost?
Requisites: Prerequisites, BIOL 101L, and 202 or 271; and PHYS 131, and 131L or 281L, and 201 or 401, and 211 or 311, and 351; pre- or corequisites, CHEM 261 and 481.
Grading status: Letter grade.

PHYS 585. Imaging Science: From Cells to Stars. 3 Credits.
Fundamentals of imaging as applied to biological, medical and astronomy imaging systems. Physics of radiation and particle sources, image formation and detection physics. Principles of optics, coherence, Fourier methods, statistics, especially as they cross disciplinary boundaries for new opportunities in imaging.
Requisites: Prerequisites, MATH 233 and PHYS 118.
Grading status: Letter grade.

PHYS 594. Nonlinear Dynamics. 3 Credits.
Interdisciplinary introduction to nonlinear dynamics and chaos. Fixed points, bifurcations, strange attractors, with applications to physics, biology, chemistry, finance.
Requisites: Prerequisite, MATH 383; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: MATH 594.

PHYS 631. Mathematical Methods of Theoretical Physics. 3 Credits.
Linear vector spaces and matrices, curvilinear coordinates, functions of complex variables, ordinary and partial differential equations, Fourier series, integral transforms, special functions, differential forms.
Requisites: Prerequisites, PHYS 281L and PHYS 332.
Grading status: Letter grade.

PHYS 632. Advanced Research Analytics. 3 Credits.
Required preparation, ability to program in a high-level computer language. Permission of the instructor for students lacking the required preparation. Methods required for the analysis, interpretation, and evaluation of physics measurements and theory. Error analysis, statistical tests, model fitting, parameter estimation, Monte Carlo methods, Bayesian inference, noise mitigation, experimental design, big data, selected numerical techniques including differential equations and Fourier techniques.
Grading status: Letter grade.

PHYS 633. Scientific Programming. 3 Credits.
Required preparation, elementary Fortran, C, or Pascal programming. Structured programming in Fortran or Pascal; use of secondary storage and program packages; numerical methods for advanced problems, error propagation and computational efficiency; symbolic mathematics by computer.
Requisites: Prerequisite, MATH 528 or 529, or PHYS 631 or 632.
Grading status: Letter grade.

PHYS 660. Fluid Dynamics. 3 Credits.
The physical properties of fluids, kinematics, governing equations, viscous incompressible flow, vorticity dynamics, boundary layers, irrotational incompressible flow.
Requisites: Prerequisite, PHYS 401; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: MASC 560, ENVR 452, GEOL 560.

PHYS 671L. Independent Laboratory I. 3 Credits.
Six laboratory hours a week.
Requisites: Prerequisites, PHYS 401 and 412; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

PHYS 672L. Independent Laboratory II. 3 Credits.
Six laboratory hours a week.
Requisites: Prerequisites, PHYS 401 and 412; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

PHYS 691H. Senior Honor Thesis Research I. 3 Credits.
Permission of the instructor. Readings in physics and directed research for a senior honor thesis project. Required of all candidates for graduation with honors in physics.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

PHYS 692H. Senior Honor Thesis Research II. 3 Credits.
Readings in physics and directed research for a senior honor thesis project. Required of all candidates for graduation with honors in physics.
Requisites: Prerequisite, PHYS 691H.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

PHYS 701. Classical Dynamics. 3 Credits.
Variational principles, Lagrangian and Hamiltonian mechanics. Symmetries and conservation laws. Two-body problems, perturbations, and small oscillations, rigid-body motion. Relation of classical to quantum mechanics.
Requisites: Prerequisite, advanced undergraduate mechanics.
Grading status: Letter grade.

PHYS 711. Electromagnetic Theory I. 3 Credits.
Electrostatics, magnetostatics, time-varying fields, Maxwell's equations.
Requisites: Prerequisites, PHYS 631 and 632.
Grading status: Letter grade.

PHYS 712. Electromagnetic Theory. 3 Credits.
Maxwell's equations, time-varying fields, and conservation laws. Plane EM waves, polarization, propagation, dispersive media. Wave guides and resonant cavities. Radiation from slow-moving charges. Special theory of relativity. Radiation from relativistic charges. Interaction between radiation and matter.
Grading status: Letter grade.

PHYS 715. Visualization in the Sciences. 3 Credits.
Computational visualization applied in the natural sciences. For both computer science and natural science students. Available techniques and their characteristics, based on human perception, using software visualization toolkits. Project course.
Grading status: Letter grade
Same as: COMP 715, MTSC 715.

PHYS 721. Quantum Mechanics. 3 Credits.
Review of nonrelativistic quantum mechanics. Spin, angular momentum, perturbation theory, scattering, identical particles, Hartree-Fock method, Dirac equation, radiation theory.
Requisites: Prerequisite, PHYS 421.
Grading status: Letter grade.

PHYS 722. Quantum Mechanics. 3 Credits.
Review of nonrelativistic quantum mechanics. Spin, angular momentum, perturbation theory, scattering, identical particles, Hartree-Fock method, Dirac equation, radiation theory.
Requisites: Prerequisite, PHYS 421.
Grading status: Letter grade.

PHYS 741. Statistical Mechanics. 3 Credits.
Classical and quantal statistical mechanics, ensembles, partition functions, ideal Fermi and Bose gases.
Requisites: Prerequisites, PHYS 701 and 721.
Grading status: Letter grade.

PHYS 771L. Advanced Spectroscopic Techniques. 3 Credits.
Advanced spectroscopic techniques, including Rutherford backscattering-channeling, perturbed angular correlation, Raman scattering, electron paramagnetic resonance, nuclear magnetic resonance, optical absorption, and Hall effect. Two hours of lecture and three hours of laboratory a week.
Requisites: Prerequisite, PHYS 401 or 412; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PHYS 772L. Advanced Spectroscopic Techniques. 3 Credits.
Advanced spectroscopic techniques, including Rutherford backscattering-channeling, perturbed angular correlation, Raman scattering, electron paramagnetic resonance, nuclear magnetic resonance, optical absorption and Hall effect. One hour of lecture and five hours of laboratory a week.
Requisites: Prerequisite, PHYS 401 or 412; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PHYS 780. Advanced Materials Science. 3 Credits.
This course covers the physical fundamentals of material science with an in-depth discussion of structure formation in soft and hard materials and how structure determines material mechanical, electrical, thermal, and optical properties. Topics include amorphous and crystal structures, defects, dislocation theory, thermodynamics and phase diagrams, diffusion, interfaces and microstructures, solidification, and theory of phase transformation. Special emphasis will be on the structure-property relationships of (bio)polymers, (nano)composites, and their structure property relationships.
Grading status: Letter grade
Same as: MTSC 780, BMME 780, CHEM 780.

PHYS 821. Advanced Quantum Mechanics. 3 Credits.
Advanced angular momentum, atomic and molecular theory, many-body theory, quantum field theory.
Requisites: Prerequisite, PHYS 722.
Grading status: Letter grade.

PHYS 822. Field Theory. 3 Credits.
Quantum field theory, path integrals, gauge invariance, renormalization group, Higgs mechanism, electroweak theory, quantum chromodynamics, Standard Model, unified field theories.
Requisites: Prerequisite, PHYS 722.
Grading status: Letter grade.

PHYS 823. Field Theory. 3 Credits.
Quantum field theory, path integrals, gauge invariance, renormalization group, Higgs mechanism, electroweak theory, quantum chromodynamics, Standard Model, unified field theories.
Requisites: Prerequisite, PHYS 722.
Grading status: Letter grade.

PHYS 824. Group Theory and its Applications. 3 Credits.
Required preparation, knowledge of matrices, mechanics, and quantum mechanics. Discrete and continuous groups. Representation theory. Application to atomic, molecular, solid state, nuclear, and particle physics.
Grading status: Letter grade.

PHYS 829. Principles of Magnetic Resonance. 3 Credits.
Prerequisite, CHEM 781 or PHYS 721; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PHYS 831. Differential Geometry in Modern Physics. 3 Credits.
Applications to electrodynamics, general relativity, and nonabelian gauge theories of methods of differential geometry, including tensors, spinors, differential forms, connections and curvature, covariant exterior derivatives, and Lie derivatives.
Requisites: Prerequisites, PHYS 701, 711, and 712.
Grading status: Letter grade.

PHYS 832. General Theory of Relativity. 3 Credits.
Differential geometry of space-time. Tensor fields and forms. Curvature, geodesics. Einstein's gravitational field equations. Tests of Einstein's theory. Applications to astrophysics and cosmology.
Requisites: Prerequisite, PHYS 831; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PHYS 861. Nuclear Physics. 3 Credits.
Nuclear reactions, scattering, nuclear structure, nuclear astrophysics.
Requisites: Prerequisites, PHYS 543 and 721.
Grading status: Letter grade.

PHYS 862. Nuclear Physics. 3 Credits.
Overview of Standard Model of particle physics. Fundamental symmetries and weak interactions. Neutrino physics. Particle-astrophysics and cosmology.
Requisites: Prerequisites, PHYS 543 and 721.
Grading status: Letter grade.

PHYS 871. Solid State Physics. 3 Credits.
Equivalent experience for students lacking the prerequisite. Topics considered include those of PHYS 573, but at a more advanced level, and in addition a detailed discussion of the interaction of waves (electromagnetic, elastic, and electron waves) with periodic structures, e.g., X-ray diffraction, phonons, band theory of metals and semiconductors.
Requisites: Prerequisite, PHYS 421.
Grading status: Letter grade
Same as: MTSC 871.

PHYS 872. Solid State Physics II. 3 Credits.
Topics considered include quantum and thermal fluctuations, and thermodynamics of phase transitions in a broad variety of condensed matter systems, their kinetic theory and hydrodynamics, novel materials (two-dimensional electron gas, graphene, topological insulators and superconductors, Dirac/Weyl/nodal line semimetals), condensed matter applications of modern field-theoretical methods (path integral, renormalization group, holography).
Requisites: Prerequisite, PHYS 871.
Grading status: Letter grade
Same as: MTSC 872.

PHYS 873. Theory of the Solid State. 3 Credits.
Calculation of one-electron energy band structure. Electron-hole correlation effect and excitons. Theory of spin waves. Many-body techniques in solid state problems including theory of superconductivity.
Requisites: Prerequisite, PHYS 722.
Grading status: Letter grade.

PHYS 883. Current Advances in Physics. 3 Credits.
Permission of the instructor. In recent years, elementary particle physics, amorphous solids, neutrinos, and electron microscopy have been among the topics discussed.
Grading status: Letter grade.

PHYS 885. Introductory Graduate Seminar in Physics and Astronomy. 1 Credit.
Introduction to skills needed for success in graduate courses and research, including practice using general-purpose mathematical/computational tools, assessment of the research landscape and research project design, preparing a proposal, and participating in peer review. Professional development topics such as ethics and etiquette, time management, and career planning are also covered.
Grading status: Letter grade.

PHYS 893. Seminar in Solid State Physics. 1-21 Credits.
Research topics in condensed-matter physics, with emphasis on current experimental and theoretical studies.
Grading status: Letter grade.

PHYS 895. Seminar in Nuclear Physics. 1-21 Credits.
Current research topics in low-energy nuclear physics, especially as related to the interests of the Triangle Universities Nuclear Laboratory.
Grading status: Letter grade.

PHYS 896. Seminar in Particle Physics. 1-21 Credits.
Symmetries, gauge theories, asymptotic freedom, unified theories of weak and electromagnetic interactions, and recent developments in field theory.
Grading status: Letter grade.

PHYS 897. Seminar in Theoretical Physics. 1-21 Credits.
Topics from current theoretical research including, but not restricted to, field theory, particle physics, gravitation, and relativity.
Grading status: Letter grade.

PHYS 899. Seminar in Professional Practice. 1-21 Credits.
Required preparation, Ph.D. written exam passed. The role and responsibilities of a physicist in the industrial or corporate environment and as a consultant.
Grading status: Letter grade.

PHYS 901. Research. 1-21 Credits.
10 or more laboratory or computation hours a week.
Grading status: Letter grade.

PHYS 992. Master's (Non-Thesis). 3 Credits.

PHYS 993. Master's Research and Thesis. 3 Credits.

PHYS 994. Doctoral Research and Dissertation. 3 Credits.
Fall or spring. Staff.
Repeat rules: May be repeated for credit.

**The PHYS 821 and PHYS 896 sequence alternates with PHYS 822 and PHYS 823.*

DEPARTMENT OF POLITICAL SCIENCE (GRAD)

Contact Information

Department of Political Science
Visit Program Website (https://politicalscience.unc.edu)

Mark Crescenzi, Chair

The political science graduate program is small and very selective. Each year about 15 students enroll. Most graduate students pursue the doctor of philosophy in political science. However, the department also offers courses of study leading to the master of arts in political science, the master of arts in political science with a certificate in Latin American studies, and a master of arts in political science through the TransAtlantic Masters (TAM) (http://tam.unc.edu) program.

Admission

The general prerequisite for admission to graduate study is a bachelor of arts degree or equivalent. A student is not required to have an undergraduate major in political science but will normally be expected to have had at least nine semester hours of coursework in political science.

All applicants for admission to graduate study must take the Graduate Record Examination (GRE). Prospective applicants should take the test early enough to enable them to submit official reports of scores with their application for admission. In considering applications for fellowship awards, these test scores receive heavy emphasis. Applicants are encouraged to have their applications complete by December 1 and no later than posted deadlines. Applicants are also required to submit a writing sample and a personal statement.

The Center for European Studies

The Center for European Studies (CES), a Jean Monnet Center of Excellence and a U.S. Department of Education Title VI National Resource Center, advances understanding of the social, political, and economic events that shape contemporary Europe. The overarching mandate of the center is to enhance undergraduate and graduate instruction in contemporary European studies, to promote scholarship and training for students and faculty from all disciplines and professional schools, and to stimulate institutional and public awareness of Europe's economic, cultural, and political importance on campus, in North Carolina, and across the nation. CES has close ties to the TransAtlantic Masters program, which offers an M.A. in political science and includes study at UNC and at one or more partner universities in Europe. For more information on TAM please visit the dedicated Web site (http://tam.unc.edu). CES furthermore brings many European experts to campus, holds conferences and lecture series on events surrounding contemporary Europe, and offers Foreign Language Area Studies Fellowships to graduate students to support intensive language training.

Center for Slavic, Eurasian, and East European Studies

The Center for Slavic, Eurasian, and East European Studies (CSEEES) is an interdisciplinary center run jointly with a sister center at Duke University. In addition to offering an undergraduate major in Russian and East European studies, the center actively promotes graduate education and research in this area of the world.

As a U.S. Department of Education Title VI Center, CSEEES awards Foreign Language and Area Studies (FLAS) fellowships to a few graduate students each academic year and summer to help them acquire the language skills and area expertise necessary for advanced study and field research in this part of the world.

The Louis Harris Data Center

The national polling company Harris Interactive (formerly Louis Harris & Associates) has been surveying Americans' opinions on issues of national importance since the late 1950s. Harris surveys cover many topics, including national morale, the arts, energy policy, women's roles, political candidates, violence, health, and housing. The breadth and scope of the Harris surveys make them a rich source for secondary analysis by social scientists.

In 1965 Louis Harris agreed to make his data available for secondary analysis by researchers. Harris and the University of North Carolina jointly agreed to establish at Chapel Hill the Louis Harris Data Center as the national archive for all Harris data. Since 1965 more than 200 national, state, and community studies conducted by Harris Interactive have been deposited at the Harris Data Center for use by researchers at the University and elsewhere.

Departmental programs of graduate study are intended to train professional political scientists. Thus, graduate work is expected to be qualitatively different from undergraduate work. Its emphasis is upon the acquisition of tools, skills, and knowledge at a level to qualify the student to carry on research, to teach, to fill active political and administrative duties, and to carry on other roles that advance the profession of practicing political scientists.

All candidates for graduate degrees will be expected to achieve broad mastery at the professional level of the literature, problems, and skills of the academic fields and subfields offered for the degree, and will have gained experience in teaching and research. Much more is required of the candidate than mere compilation of credits in relevant courses.

At the M.A. level, the student is required, in addition to passing the course programs successfully, to write a thesis and to be examined orally on the major field of interest and in defense of the thesis.

At the doctoral level, preliminary examinations are both written and oral, in that order. Written examinations are given twice each year, in September and in March. The final part of the examination is an oral defense of the dissertation proposal. Successful completion of these examinations permits a student to become a doctoral candidate. Following completion of the dissertation, a final oral examination will be held, which is primarily a defense of the dissertation but may include such excursions into underlying theory and related fields as are germane to the dissertation.

Field and Course Requirements

The political science curriculum is designed to ensure that graduate students develop a professional competence in the discipline as a whole, as well as expertise in one major and one minor field. The courses in the department are grouped under the following broad categories: international relations, comparative politics, political theory, American politics, methodology, and public policy/public administration (minor field only).

Ph.D. students are required to demonstrate competence in two fields of study and, by participating in the instructional program, to undergo training as teachers. A minimum of four courses and a comprehensive examination is required in the major field. Three courses are required in the minor field.

The Institute of Latin American Studies and the Graduate Certificate

The Institute of Latin American Studies and the Consortium in Latin American Studies at UNC–Chapel Hill and Duke University serve as a medium for interdisciplinary communication on Latin America, encouraging and stimulating instruction and research on the region. They provide funding for interdisciplinary working groups, visiting scholars, research workshops, and guest lectures, as well as support for graduate students through academic year and summer fellowships and research and conference travel grants. The program has been funded as a National Resource (Title VI) Center since 1991 by the U.S. Department of Education.

Although the University of North Carolina at Chapel Hill does not grant an interdisciplinary postgraduate degree in Latin American studies, graduate students seeking to document their area expertise are encouraged to earn a certificate in Latin American studies in conjunction with any advanced degree in any University graduate program. The requirements for the certificate are

1. A minimum of two semesters of residence
2. Language competence in Spanish or Portuguese
3. Four graduate courses on Latin American topics
4. A thesis on a topic related to Latin America, and
5. An oral defense of the thesis

For students in professional schools or departments that do not require defense of a thesis, a letter from the student's advisor indicating that a major research project on a Latin American topic was successfully completed will be sufficient to waive the requirement. Graduate students interested in obtaining a certificate in Latin American studies should contact the director of the Institute of Latin American Studies.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Navin Bapat (68), International Relations, Insurgency and Terrorism
Frank Baumgartner (72), Public Policy, Agenda Setting, Interest Groups, Lobbying
Pamela Conover (10), Political Psychology, Mass Political Behavior, Gender Politics
Mark Crescenzi (05), International Politics, Conflict Processes, Political Economy
Virginia Gray (40), State Politics, Public Policy, Interest Groups
Jonathan Hartlyn (46), Comparative Politics, Latin American Politics
Marc Hetherington (21), American Politics
Liesbet Hooghe (04), Comparative Politics, European Union, West European Politics
Evelyne Huber (54), Comparative Politics, Political Economy, Latin American Politics
Stuart Elaine Macdonald (39), Political Behavior, Public Opinion, Research Methods
Michael MacKuen (66), American Politics, Political Methodology
Gary Marks (18), Comparative Politics, Western Europe
Kevin McGuire (60), Judicial Politics, American Politics
Timothy McKeown (22), International Relations, International Political Economy
Layna Mosley (9), International Relations, International Political Economy, Comparative Political Economy
Thomas Oatley (57), International Relations, International Political Economy, European Countries
Andrew Reynolds (13), Comparative Politics, Political Institutions, African Politics
Jason Roberts (73), American Political Institutions with Emphasis on Congress
Graeme Robertson (7), Comparative Politics, Russian Politics, Labor and Social Movements, Democratization
Donald Searing (30), Comparative Politics, Political Psychology
Jeff Spinner-Halev (11), History of Political Thought, Contemporary Political Theory, Democratic Theory
John Stephens (55), Political Economy, Western Europe, Caribbean

Associate Professors

Anna Bassi (41), Formal Theory, Experimental Methodology
Susan Bickford (58), History of Political Thought, Feminist Theory, Democratic Theory
Stephen Gent (8), International Conflict, Civil Conflict, Game Theory
Michele Hoyman (06), American Politics, Public Administration, Labor Relations and Labor Law, Rural Economic Development
Cecilia Martinez-Gallardo (69), Comparative Politics, Latin American Political Institutions, Government Formation and Change
Sarah Roberts (23), American Political Institutions, the United States Congress, Courts, the Separation of Powers
Terry Sullivan (47), Congressional and Executive Politics
Isaac Unah (62), Judicial Politics, Regulatory Policy, Bureaucratic Implementation
Milada Vachudova (12), Comparative Politics, International Institutions, Western and Eastern European Politics

Assistant Professors

Cameron Ballard-Rosa (19), International Relations, International Political Economy
Andrea Benjamin (14), Race and Politics
Chris Clark (16), Race and Representation, State Politics
Lucy Martin (24), Comparative Politics, Political Economy, African Politics
Santiago Olivella (25), Quantitative Methods, Comparative Politics
Tim Ryan (61), American Political Behavior

Lecturers

Robert Jenkins (26), Slavic, Eurasian, and East European Studies
Matt Weidenfeld (27), Political Theory and American Politics

Professors Emeriti

Thad Beyle
Raymond Dawson
Stephen Leonard
Michael Lienesch
Lewis Lipsitz
Richard Richardson
Lars Schoultz
Jurg Steiner
Alan Stern
James Stimson

James White

POLI

Advanced Undergraduate and Graduate-level Courses

POLI 400. Executive Politics. 3 Credits.
This course explores how presidents select policy options, how they decide timing, what shapes their congressional support, and how they build successful coalitions.
Gen Ed: SS, CI.
Grading status: Letter grade.

POLI 401. Political Economy I: The Domestic System. 3 Credits.
Problems of the national government in managing capitalist development and economic growth; political constraints; patterns of conflict among domestic actors.
Gen Ed: SS.
Grading status: Letter grade.

POLI 404. Race, Immigration, and Urban Politics. 3 Credits.
This course provides a survey of the literature on race, immigration, and urban politics in the contemporary United States. The goal is to understand the complex relationship between racial/ethnic identity and local political processes. Students explore topics such as police brutality, immigration, the education system, and coalition politics.
Requisites: Prerequisite, POLI 100.
Gen Ed: SS, EE- Service Learning, US.
Grading status: Letter grade.

POLI 406. State Governments: Laboratories of Democracy. 3 Credits.
Advanced topics in state government and politics, including political behavior and processes, governmental institutions, public policies. Emphasis on how states serve as the laboratories of democracy in a federal system.
Requisites: Prerequisite, POLI 100 or 101.
Grading status: Letter grade.

POLI 409. Mock Constitutional Convention. 3 Credits.
Students employ their understanding of political philosophy and practical politics to write a new constitution for the United States. Emphasis is on creative blending of theory and practice.
Gen Ed: SS.
Grading status: Letter grade.

POLI 410. The Constitution of the United States. 3 Credits.
A study of the fundamental principles of constitutional interpretation and practice in the United States by means of lectures, textbooks, and cases. Emphasis will be on the political context surrounding and the impact following Supreme Court decisions.
Gen Ed: SS, NA.
Grading status: Letter grade.

POLI 411. Civil Liberties under the Constitution. 3 Credits.
An analysis of the complex political problems created by the expansion of protection for individual liberties in the United States. Emphasis will be on contemporary problems with some supplemental historical background. Honors version available
Gen Ed: HS, NA.
Grading status: Letter grade.

POLI 411H. Civil Liberties under the Constitution. 3 Credits.
An analysis of the complex political problems created by the expansion of protection for individual liberties in the United States. Emphasis will be on contemporary problems with some supplemental historical background.
Gen Ed: HS, NA.
Grading status: Letter grade.

POLI 412. United States National Elections. 3 Credits.
Course studies United States presidential and congressional elections. Emphasis on individual vote, changing party strengths, and the relation of outcomes to policy. Honors version available
Gen Ed: SS, NA.
Grading status: Letter grade.

POLI 412H. United States National Elections. 3 Credits.
Course studies United States presidential and congressional elections. Emphasis on individual vote, changing party strengths, and the relation of outcomes to policy.
Gen Ed: SS, NA.
Grading status: Letter grade.

POLI 416. Constitutional Policies and the Judicial Process. 3 Credits.
Analysis of the structure and functions of judicial systems emphasizing the organization, administration, and politics of judicial bureaucracies and roles of judges, juries, counsel, litigants, and interested groups in adjudication processes.
Gen Ed: SS, NA.
Grading status: Letter grade
Same as: PWAD 416.

POLI 417. Advanced Political Psychology. 3 Credits.
Examines in greater depth issues in the field of political psychology, including conflict and conflict resolution, socialization, attitude formation, mass movements, leader-follower relationships, and psychobiography. Honors version available
Gen Ed: SS, CI, QI.
Grading status: Letter grade.

POLI 417H. Advanced Political Psychology. 3 Credits.
Examines in greater depth issues in the field of political psychology, including conflict and conflict resolution, socialization, attitude formation, mass movements, leader-follower relationships, and psychobiography.
Gen Ed: SS, CI, QI.
Grading status: Letter grade.

POLI 418. Mass Media and American Politics. 3 Credits.
Junior-senior standing required. Examination of the role, behavior, and influence of the mass media in American politics.
Gen Ed: SS, NA.
Grading status: Letter grade.

POLI 419H. Race and Politics in the Contemporary United States. 3 Credits.
Restricted to juniors and seniors. Surveys the vast literature on race and politics in the contemporary United States and examines the complex relationship between racial and ethnic identity and political outcomes. It explores broad political science concepts in the context of racial and ethnic groups.
Gen Ed: SS, US.
Grading status: Letter grade.

POLI 419. Race and Politics in the Contemporary United States. 3 Credits.
Restricted to juniors and seniors. Surveys the vast literature on race and politics in the contemporary United States and examines the complex relationship between racial and ethnic identity and political outcomes. It explores broad political science concepts in the context of racial and ethnic groups. Honors version available
Gen Ed: SS, US.
Grading status: Letter grade.

POLI 420. Legislative Politics. 3 Credits.
Examines the politics of the United States Congress. Emphasis on representation, the legislative process, and policy making. Honors version available
Gen Ed: SS.
Grading status: Letter grade.

POLI 420H. Legislative Politics. 3 Credits.
Examines the politics of the United States Congress. Emphasis on representation, the legislative process, and policy making.
Gen Ed: SS.
Grading status: Letter grade.

POLI 421. Framing Public Policies. 3 Credits.
This course will focus on the process by which policies get framed, or defined, in public discussions. Framing is focusing attention on some elements of a complex public problem rather than others. Readings combine psychological background with case histories of United States and comparative public policy changes over time.
Gen Ed: SS, CI, EE- Mentored Research.
Grading status: Letter grade.

POLI 422. Minority Representation in the American States. 3 Credits.
This class explores the political representation of blacks, Latina/os, women, and gays and lesbians in the American states. How do these groups achieve descriptive and substantive representation? How does state context shape the political representation of these minorities? Students taking this course should have a strong interest in state politics.
Gen Ed: SS, US.
Grading status: Letter grade.

POLI 424. Legislative Procedure in Congress. 3 Credits.
Examines legislative procedure in Congress. Requires active participation in a Model Congress.
Gen Ed: SS.
Grading status: Letter grade.

POLI 428. Sexuality, Race, and Gender: Identity and Political Representation. 3 Credits.
Analyzing the impact of the descriptive representation of marginalized communities on public policy, legislation, and social change. Sexual orientation, identity, gender, ethnicity and race, and the intersectionality of these communities. We seek to understand the role that elected officials can have in driving change, affecting their colleagues and constituents.
Gen Ed: SS, US.
Grading status: Letter grade.

POLI 429. Diversity and Politics. 3 Credits.
Diversity is sometimes cited as a facilitator of political cooperation but more often it is considered a challenge for constructive civic engagement. This course engages the various ways in which different forms of diversity (e.g., racial, ethnic, religious, linguistic, national origin) and politics interact across a wide range of societies.
Requisites: Prerequisite, POLI 130.
Gen Ed: GL.
Grading status: Letter grade.

POLI 430. Analysis of National Security Policy. 3 Credits.
Course explores contemporary threats to national security, approaches to national security strategy, policy instruments, the role of military force, and the policy-making process.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: PLCY 430, PWAD 430.

POLI 431. African Politics and Societies. 3 Credits.
The problems of race, class, and ideology are explored in the countries south of the Zambezi River, along with the political and economic ties that bind these countries.
Gen Ed: SS, BN, GL.
Grading status: Letter grade.

POLI 432. Tolerance in Liberal States. 3 Credits.
This course will compare the theory and practice of tolerance in the United States and Europe, with particular attention to Great Britain and France.
Gen Ed: PH, CI, NA.
Grading status: Letter grade.

POLI 433. Politics of the European Union. 3 Credits.
Examines the politics and political economy of institutional change and policy making in the European Union in comparative perspective. Honors version available
Gen Ed: SS, GL, NA.
Grading status: Letter grade.

POLI 433H. Politics of the European Union. 3 Credits.
Examines the politics and political economy of institutional change and policy making in the European Union in comparative perspective.
Gen Ed: SS, GL, NA.
Grading status: Letter grade.

POLI 434. Politics of Mexico. 3 Credits.
This course provides a survey of 20th-century politics in Mexico, including the construction of the single-party regime under the PRI and the political and economic changes in the second half of the century that marked the end of the one-party regime and inaugurated a new era of political competition.
Gen Ed: SS, BN.
Grading status: Letter grade.

POLI 435. Democracy and Development in Latin America. 3 Credits.
The analysis of central issues of democracy and development in Latin America. Honors version available
Gen Ed: SS, BN, GL.
Grading status: Letter grade.

POLI 435H. Democracy and Development in Latin America. 3 Credits.
The analysis of central issues of democracy and development in Latin America.
Gen Ed: SS, BN, GL.
Grading status: Letter grade.

POLI 438. Democracy and International Institutions in an Undivided Europe. 3 Credits.
Explores the collapse of communist rule in 1989 and the reaction of international institutions to the challenges of democratization, economic transition, ethnic conflict, and European integration in an undivided Europe.
Gen Ed: SS, NA.
Grading status: Letter grade.

POLI 440. How to Stay in Power When the People Want You Dead: The Politics of Authoritarian Survival. 3 Credits.
Dictators do not rely on consent of the people to stay in power. But they do still face constraints and must perform a delicate balancing act to maintain enough support to stay in office and reap its rewards. This class seeks to understand when autocrats are successful and when they fail.
Gen Ed: SS, GL.
Grading status: Letter grade.

POLI 441. Israeli Politics and Society. 3 Credits.
This course will explore Israeli society, Israeli politics, and the Arab-Israeli conflict.
Gen Ed: BN, GL.
Grading status: Letter grade.

POLI 442. International Political Economy. 3 Credits.
Theories of international political economy, major trends in international economic relations, selected contemporary policy issues.
Requisites: Prerequisites, ECON 101 and POLI 150.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: EURO 442.

POLI 443. American Foreign Policy: Formulation and Conduct. 3 Credits.
The role of Congress, the press, public opinion, the president, the secretary and the Department of State, the military, and the intelligence community in making American foreign policy. Emphasizes the impact of the bureaucratic process on the content of foreign policy.
Requisites: Prerequisite, POLI 150; permission of the instructor for students lacking the prerequisite.
Gen Ed: SS.
Grading status: Letter grade
Same as: PWAD 443.

POLI 444. Terrorism and International Peace. 3 Credits.
The U.S. 9/11 attack represents the defining terrorist attack to Americans, but in most of the world, terrorism has long been part of politics. We will examine what motivates individuals to consider violence, how individuals organize to protect their political interests, the types of tactics used by violent groups and the state's response, before concluding with a study of collapsed states, the international implications of political violence, and possibilities for conflict resolution.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: PWAD 444.

POLI 447. Immigrant Integration in Contemporary Western Europe. 3 Credits.
Immigrant integration has been one of the most intense political issues in Western Europe in recent decades. The extent to which these immigrants have successfully integrated is a hot topic of debate across Europe, and there is no consensus about the best way to promote integration. This course explores these debates. Honors version available
Gen Ed: SS, CI, NA.
Grading status: Letter grade.

POLI 447H. Immigrant Integration in Contemporary Western Europe. 3 Credits.
Immigrant integration has been one of the most intense political issues in Western Europe in recent decades. The extent to which these immigrants have successfully integrated is a hot topic of debate across Europe, and there is no consensus about the best way to promote integration. This course explores these debates.
Gen Ed: SS, CI, NA.
Grading status: Letter grade.

POLI 448. The Politics of Multilevel Governance. 3 Credits.
Political authority is changing around the world. Decision making has shifted down to state and local governments, such as Catalonia and Scotland, and up to international organizations such as the European Union and the World Health Organization. What does this mean for the future of the national state?
Gen Ed: SS, GL.
Grading status: Letter grade.

POLI 449. Beg, Borrow, or Steal: How Governments Get Money and Its Effects on Accountability. 3 Credits.
This course explores the politics behind taxation, foreign aid, natural resources, and debt, focusing on how each affects accountability and state capacity. Topics include when governments tax; whether taxation causes democratization; the effects of foreign aid and oil money on corruption and conflict; and how government debt shapes domestic politics.
Gen Ed: SS, GL.
Grading status: Letter grade.

POLI 450. Contemporary Inter-American Relations. 3 Credits.
A comprehensive analysis of hemispheric international relations and foreign policies of individual Latin American nations. Honors version available
Gen Ed: SS, GL.
Grading status: Letter grade.

POLI 450H. Contemporary Inter-American Relations. 3 Credits.
A comprehensive analysis of hemispheric international relations and foreign policies of individual Latin American nations.
Gen Ed: SS, GL.
Grading status: Letter grade.

POLI 451. Race, Ethnicity, and Political Change in Comparative Perspective. 3 Credits.
The course examines the interplay of race, ethnicity, political institutions, and political mobilization in modern state and nation-building. Through the use of broadly drawn international case studies, the politics of ethnicity and race is analyzed from the perspective of global processes of state building, colonialism and decolonization, and capitalist development as well from local development of ideology and political organizations.
Gen Ed: SS, BN.
Grading status: Letter grade.

POLI 452. Africa and International Conflict. 3 Credits.
The purpose of this course is to examine Africa's conflicts using an historical examination and advances in international relations theory. We will examine European colonial intervention, the wars of independence, the Cold War, and the use of proxies, insurgencies, the African World War, the Sudanese War, and the "war of terrorism.
Gen Ed: BN, GL.
Grading status: Letter grade.

POLI 453. When Countries Go Broke: Political Responses to Financial Crises. 3 Credits.
What happens when countries go broke? This course considers the complex historical relation between revenue generation and the development of the nation-state, and details a variety of major crises facing governments today, including the political determinants of and responses to major recent financial crises.
Gen Ed: SS, GL.
Grading status: Letter grade.

POLI 457. International Conflict Processes. 3 Credits.
Analysis of international conflict and the causal mechanisms that drive or prevent conflict. Emphasis is on the conditions and processes of conflict and cooperation between nations.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: PWAD 457.

POLI 458. International Conflict Management and Resolution. 3 Credits.
Examines the management and resolution of international and civil wars. Honors version available
Requisites: Prerequisite, POLI 150.
Gen Ed: SS.
Grading status: Letter grade
Same as: PWAD 458.

POLI 458H. International Conflict Management and Resolution. 3 Credits.
Examines the management and resolution of international and civil wars.
Requisites: Prerequisite, POLI 150.
Gen Ed: SS.
Grading status: Letter grade
Same as: PWAD 458H.

POLI 459. Trans-Atlantic Security. 3 Credits.
The course explores the development of Euro-Atlantic security institutions (NATO, EU) and compares security policy in the United States and Europe. Cases include policy toward the Balkans, Afghanistan, Russia, and Ukraine. Includes review of concepts of security and selected international relations approaches to international organizations.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: PWAD 459.

POLI 469. Conflict and Intervention in the Former Yugoslavia. 3 Credits.
Focuses on ethnic and political conflicts in the former Yugoslavia and efforts by the international community to end conflict and promote peace and reconstruction. Honors version available
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: PWAD 469.

POLI 469H. Conflict and Intervention in the Former Yugoslavia. 3 Credits.
Focuses on ethnic and political conflicts in the former Yugoslavia and efforts by the international community to end conflict and promote peace and reconstruction.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: PWAD 469H.

POLI 470. Social and Political Philosophy. 3 Credits.
An examination of the logic of social and political thought with an analysis of such concepts as society, state, power, authority, freedom, social and political obligation, law, rights. Honors version available
Gen Ed: PH, NA.
Grading status: Letter grade.

POLI 470H. Social and Political Philosophy. 3 Credits.
An examination of the logic of social and political thought with an analysis of such concepts as society, state, power, authority, freedom, social and political obligation, law, rights.
Gen Ed: PH, NA.
Grading status: Letter grade.

POLI 471. Contemporary Political Thought. 3 Credits.
Survey of the historical foundations, central tenets, and political consequences of prominent 20th-century political theories. Topics include contemporary liberalism and Marxism, fascism, theories of development, populism, feminism. Honors version available
Gen Ed: PH, NA.
Grading status: Letter grade.

POLI 471H. Contemporary Political Thought. 3 Credits.
Survey of the historical foundations, central tenets, and political consequences of prominent 20th-century political theories. Topics include contemporary liberalism and Marxism, fascism, theories of development, populism, feminism.
Gen Ed: PH, NA.
Grading status: Letter grade.

POLI 472. Problems of Modern Democratic Theory. 3 Credits.
Major problem areas in democratic theory including definitions, presuppositions, and justifications of democracy, liberty, equality, minority rights, public interest, participation, dissent, and civil disobedience. Honors version available
Gen Ed: PH, NA.
Grading status: Letter grade.

POLI 472H. Problems of Modern Democratic Theory. 3 Credits.
Major problem areas in democratic theory including definitions, presuppositions, and justifications of democracy, liberty, equality, minority rights, public interest, participation, dissent, and civil disobedience.
Gen Ed: PH, NA.
Grading status: Letter grade.

POLI 473. Politics and Literature. 3 Credits.
Identifies and interprets political ideas using historical and contemporary literary sources. Examines literature as political practice.
Gen Ed: PH, NA.
Grading status: Letter grade.

POLI 474. Religion and Politics. 3 Credits.
Examines the relationship between religion and politics, with emphasis on the United States. Topics include church-state issues, religious-political movements, religion and public policy, religion and voting.
Gen Ed: HS.
Grading status: Letter grade.

POLI 476. The Political Theory of the American Founding. 3 Credits.
A role-immersive simulation of the Constitutional Convention of 1787. Students employ their knowledge of the political theory and science of the founding period to become the Convention of 1787 and write a constitution.
Gen Ed: PH, CI, NA.
Grading status: Letter grade.

POLI 477. Advanced Feminist Political Theory. 3 Credits.
Examines in greater depth and complexity current issues in feminist political theory. Topics: theories of subjectivity and solidarity, feminist poststructuralist and post-Marxist thinking, gender in the public sphere.
Gen Ed: PH, CI, NA.
Grading status: Letter grade
Same as: WGST 477.

POLI 488. Game Theory. 3 Credits.
Increasingly, political and social scientists are using game theory to analyze strategic interactions across different settings. This course aims to give students a deep technical understanding of the most relevant concepts of game theory and how these concepts have been applied to the study of political and economic phenomena.
Requisites: Prerequisite, POLI 287 or 288.
Gen Ed: SS, QI.
Grading status: Letter grade.

POLI 490. Advanced Special Topics in Political Science. 3 Credits.
A detailed examination of advanced special topics in political science. Honors version available
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

POLI 490H. Advanced Special Topics in Political Science. 3 Credits.
A detailed examination of advanced special topics in political science.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

POLI 630. Political Contestation in Europe. 3 Credits.
Examines recent developments in the European integration process by exploring the potential for political contestation concerning European Union matters in national politics. Familiarizes students with the main theoretical approaches and the extensive empirical work dealing with the effects of European integration.
Gen Ed: SS.
Grading status: Letter grade.

POLI 631. European Security: The Enlarging European Union and the Trans-Atlantic Relationship. 3 Credits.
Permission of the instructor for undergraduates. Since the collapse of communism from 1989 to 1991, the European Union has faced a fundamentally different geopolitical neighborhood and an evolving relationship with the United States. We will explore how Europe has addressed new challenges to its security in its neighborhood and beyond.
Gen Ed: SS.
Grading status: Letter grade.

POLI 632. The European Union as a Global Actor. 3 Credits.
Permission of the instructor for undergraduates. This seminar introduces students to basic theoretical approaches to both international relations and the European Union by focusing on the European Union's external relations and foreign policies.
Gen Ed: SS.
Grading status: Letter grade.

POLI 691H. Honors Seminar in Research Design. 3 Credits.
Required of all students in the honors program in political science.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

POLI 692H. Honors Thesis Research. 3 Credits.
Required of all students in the honors program in political science.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

POLI 693H. Honors Thesis Research. 3 Credits.
Required of all students in the honors program in political science.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

POLI 698. Philosophy, Politics, and Economics: Capstone Course. 3 Credits.
Permission of the department. This capstone course advances PHIL 384, focusing on such theoretical and philosophical issues as the analysis of rights or distributive justice and the institutional implications of moral forms.
Requisites: Prerequisite, PHIL 384.
Grading status: Letter grade
Same as: PHIL 698, ECON 698.

Graduate-level Courses

POLI 700. Core Seminar on American Politics. 3 Credits.
An overview of research on American politics that introduces students to a wide range of sustentative understandings and theoretical perspectives.
Grading status: Letter grade.

POLI 701. American Political Institutions. 3 Credits.
Theory and practice of political institutions in the American context.
Grading status: Letter grade.

POLI 703. Congress and Theory Building. 3 Credits.
This course examines diverse theoretical perspectives on national institutional change and stability, using as our institutional focus the United States Congress between 1789 and 1989.
Grading status: Letter grade.

POLI 704. American Presidency. 3 Credits.
Survey of the substantial literature and research on the American Presidency.
Grading status: Letter grade.

POLI 705. Judicial Politics. 3 Credits.
Survey of recent literature on the politics of judicial institutions and the behavior of judges, lawyers, litigants, and other actors in the judicial process, emphasizing relationships between judicial and other policy-making processes.
Grading status: Letter grade.

POLI 708. Seminar in Subnational Politics and Policy. 3 Credits.
This course surveys the major topics and research programs in subnational American politics and policy, with special attention to the vertical and horizontal intergovernmental interactions inherent within federal political systems.
Grading status: Letter grade.

POLI 710. Political Parties. 3 Credits.
Selected problems and issues in the study of American and comparative parties and party systems.
Grading status: Letter grade.

POLI 711. American Political Behavior. 3 Credits.
Theoretical study of mass behavior (i.e., participation, voting, protest) in the American context.
Grading status: Letter grade.

POLI 712. Public Opinion. 3 Credits.
A study of public opinion, its formation, expression, and impact on political systems and public policy.
Grading status: Letter grade.

POLI 713. Dynamics of Electoral Politics. 3 Credits.
Change within mass electorates. Topics include issue and attitude change, political realignments, and models of electoral competition.
Grading status: Letter grade.

POLI 714. Political Socialization. 3 Credits.
The learning process by which individuals acquire values, attitudes, and norms affecting their behavior in the political community, with emphasis on major agencies of socialization: family, schools, peer groups, and media.
Grading status: Letter grade.

POLI 715. Seminar on Political Psychology. 3 Credits.
This course surveys and evaluates current and past research in political psychology. Topics may include: personality, attitudes and values, socialization, political reasoning, information processing, decision making, political identity, and political affect.
Requisites: Prerequisite, POLI 711.
Grading status: Letter grade.

POLI 716. Organized Interests in United States Politics. 3 Credits.
The course examines the major theories and empirical research on how organized interests mobilize and maintain themselves, interact within populations, exercise influence through lobbying, and impact public policy. It includes the full range of interest organizations operating in American politics at any level and in all institutional venues.
Grading status: Letter grade.

POLI 717. Potential for Democratic Stability in Deeply Divided Societies. 3 Credits.
The theory of power sharing tries to explain how stable democracy is possible in deeply divided societies.
Grading status: Letter grade.

POLI 718. Agenda-Setting. 3 Credits.
This class will focus on theoretical and empirical approaches to the study of agenda-setting in both American and comparative settings. Begins in the 1950s through current literature, covering a wide range of methodological approaches. Assignments include participation in seminar discussion, short papers on readings, and substantial original research paper.
Grading status: Letter grade.

POLI 720. Managing Public Policy. 3 Credits.
The role(s), function(s), and strategy of public administrators in the formulation, adoption, and implementation of public policies. Policy from the perspective of the policy maker; cases exploring the relationship of theories to actual policy processes. Spring.
Requisites: Prerequisites, POLI 700, 745, or PUBA 723.
Grading status: Letter grade.

POLI 721. Public Policy and Administration. 3 Credits.
Alternative explanation of public policies and policy-making processes; introduction to policy analysis as a way to inform choices among policy options; policy implementation through administrative practices and procedures.
Grading status: Letter grade.

POLI 722. Federal Policies and Institutions. 3 Credits.
The motivations of public agency officials, interactions between bureaucracies and other political actors, and alternative strategies to control bureaucratic power and discretion in making, implementing, and evaluating public policies.
Grading status: Letter grade
Same as: PUBA 722.

POLI 723. Conflict Management: The Practice of Mediation & Negotiation. 3 Credits.
Focus on skill-building useful in managing international conflicts. Students engage in mock negotiations - systematically preparing, conducting, and reviewing their own actions. Number of conflict situations around world are analyzed.
Grading status: Letter grade.

POLI 724. Organization Design. 3 Credits.
Field theory, motivation, communication, and systems perspectives as theoretical bases for organization design.
Requisites: Prerequisite, POLI 700, or permission of the instructor.
Grading status: Letter grade.

POLI 725. Public Administration Analysis and Evaluation II. 3 Credits.
Second course in a two-course sequence introducing students to applied research design, data collection, data management, data analysis, and analytical reporting to allow students to conduct original research, be informed consumers of other research, and ultimately improve public program planning and evaluation decisions.
Requisites: Prerequisite, PUBA 719.
Grading status: Letter grade
Same as: PUBA 720.

POLI 726. Intergovernmental Relations. 3 Credits.
Conflict and cooperation among governmental officials representing national, state, and local governments in the United States; changing roles of governments and new mechanisms for intergovernmental collaboration.
Grading status: Letter grade.

POLI 727. Framing. 3 Credits.
This class will focus on the theoretical and empirical studies of individual and collective framing. Readings will be from journalism, sociology, psychology, and political science and will include both US-based and comparative studies. Assignments include participation in seminar discussion, short papers on readings, and substantial original research paper.
Grading status: Letter grade.

POLI 728. Policy Workshop. 3 Credits.
Application of theories and techniques of policy analysis and planning to current public problems for actual clients. Focus on design and execution of policy research, and interpretation and presentation of results.
Grading status: Letter grade.

POLI 729. The Psychology of Collective Politics. 3 Credits.
Explores the psychological underpinnings of collective politics from the perspective of both individuals and groups. Political behaviors examined include deliberation, protest, nationalism, and intergroup conflict.
Grading status: Letter grade.

POLI 730. Comparative Political Research and Analysis. 3 Credits.
The seminar introduces the beginning graduate student to the central issues and major developments in the field of comparative government and politics.
Grading status: Letter grade.

POLI 731. The Politics of Development and Change. 3 Credits.
The theories, concepts, and mechanisms of political change, with particular attention to processes of development and modernization in the new nations of Africa, Asia, and Latin America.
Grading status: Letter grade.

POLI 732. Political Economy of Multilevel Government. 3 Credits.
The vertical distribution of governmental authority is changing around the world. Decision making, resources, and power are shifting downward (to state and local governments) and upward (to supra-national bodies like the European Union, other regional or international organizations). This course examines theories and empirical studies that explore the causes and consequences of these trends.
Grading status: Letter grade.

POLI 733. Comparative Political Economy. 3 Credits.
Examines topics in the comparative political economy of Western Europe such as neocorporatism, postindustrialism, the politics of industrial relations, and the European community.
Grading status: Letter grade.

POLI 734. Comparative Political Behavior. 3 Credits.
Political behavior of the public in cross-national or non-American settings. Political culture, belief systems, participation, protest, revolution, voting behavior, civic behavior, socialization, and media.
Grading status: Letter grade.

POLI 735. Comparative Bureaucracy. 3 Credits.
A cross-national examination of functions, career patterns, role behavior, and relationships of bureaucratic elites within the context of national political systems. Research on particular countries is emphasized.
Grading status: Letter grade.

POLI 736. Political Transitions and Democratization in Comparative Perspective. 3 Credits.
Examination of contrasting theoretical approaches to understanding democracy. Comparative study of Africa, Eastern Europe, and Latin America elucidates challenges and opportunities that affect possibilities for democratization and consolidation.
Grading status: Letter grade.

POLI 737. Psychology of Elite Decision Making. 3 Credits.
Political thinking of politicians and civil servants in domestic and foreign policy. Perception, cognition, learning, attitude change and persuasion, aging, motivation, emotions, and personality.
Grading status: Letter grade.

POLI 738. Power and Morality in Politics. 3 Credits.
Motives of power and morality in rational choice theories and theories of power sharing. Empirical findings and normative evaluations.
Grading status: Letter grade.

POLI 739. Communist Political Systems. 3 Credits.
An examination of the political evolution and process in societies governed by communist parties.
Grading status: Letter grade.

POLI 740. Issues in Latin American Politics. 3 Credits.
Explores the central issues of Latin American politics and analyzes major theoretical debates.
Grading status: Letter grade.

POLI 741. Latin American Politics: Research and Analysis. 3 Credits.
Reviews major works and theoretical perspectives in the literature, assesses contemporary political science research on Latin America, and examines problems of field research.
Grading status: Letter grade.

POLI 742. Political Economy of Latin American Development. 3 Credits.
Examines effects of state, regime-type, and political processes on agricultural and industrial policy in Latin America. Also considers the informal economy, international debt, and relationship between policy and politicization.
Grading status: Letter grade.

POLI 743. Seminar on United States - Latin American Relations. 3 Credits.
Analysis of the central conceptual concerns and major theoretical approaches to the study of inter-American relations, with a focus on United States foreign policy toward the region.
Grading status: Letter grade.

POLI 744. African Politics: Challenges of Democratization and Development. 3 Credits.
Study of the politics of development in contemporary Africa, with emphasis on changing state society relations, the roles of peasants and women in politics, and prospects for democratization.
Grading status: Letter grade.

POLI 745. Varieties of Democratic Capitalism in Europe and North America. 3 Credits.
This course will examine the development of different types of welfare states in Europe and North America.
Grading status: Letter grade.

POLI 746. Identities and Transitions. 3 Credits.
Capstone course for the REEES concentration in the Global Studies MA program. Interdisciplinary course focusing on the variety of problems encountered by the societies of East European countries and successor states of the former Soviet Union in their transition from communism to democracy.
Grading status: Letter grade
Same as: GLBL 730.

POLI 747. Diversity and Politics. 3 Credits.
Diversity is sometimes cited as a facilitator of political cooperation but more often it is considered a challenge for constructive civic engagement. This course engages the ways in which different forms of diversity (e.g., racial, ethnic, religious, linguistic, gender, national-origin, sexuality) and politics interact across a wide range of societies.
Grading status: Letter grade.

POLI 750. Theories of International Relations I. 3 Credits.
Introduction to the central issues and major theoretical developments in the field of international relations, focusing on system structure, political and security issues, and decision making.
Grading status: Letter grade.

POLI 751. Theories of International Relations II. 3 Credits.
Introduction to the central issues and major theoretical developments in the field of international relations, focusing on the politics of international economic relations, law and organization, and fundamental system change.
Grading status: Letter grade.

POLI 752. International Organization. 3 Credits.
Theories and approaches to the study of international organizations and regimes, plus selected noneconomic case studies.
Grading status: Letter grade.

POLI 753. International Conflict and Cooperation. 3 Credits.
An examination of international conflict and cooperative processes in the context of the evolution of the international system.
Grading status: Letter grade.

POLI 754. Formal Models of International Relations. 3 Credits.
An examination of research that uses formal models to analyze decision making in international relations, with a focus on non-cooperative game theory.
Grading status: Letter grade.

POLI 756. Politics of the International Economy. 3 Credits.
Positive theories of political choice in trade, monetary relations, foreign investment, and regional integration.
Grading status: Letter grade.

POLI 757. Political Economy of the Nation State in the World System. 3 Credits.
Analysis of the interaction between the external sector of the economy and domestic politics in weak capitalist states.
Requisites: Prerequisite, ECON 460 or 465; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

POLI 758. Theories of Foreign Policy. 3 Credits.
This course is an introduction to the field of foreign policy analysis. Its primary goal is to expose students to the theories and methods of foreign policy research and analysis.
Grading status: Letter grade.

POLI 759. Research in Cooperation and Conflict Processes. 3 Credits.
Advanced doctoral-level course. Builds off POLI 750 to explore current lines of research on conflict and cooperation. Each student will develop potential research projects and one expanded research project. The project should be suitable for subsequent development into a thesis and/or publication. Course focuses on research and the research process.
Grading status: Letter grade.

POLI 763. Divided Societies. 3 Credits.
When a society is deeply divided along racial, ethnic, religious or linguistic lines, this classical model brings the risk that the majoritarian segment of society always stays in power.
Grading status: Letter grade.

POLI 768. Feminist Political Theory. 3 Credits.
A survey of feminist approaches to politics and political inquiry.
Grading status: Letter grade
Same as: WGST 768.

POLI 770. Community Economic Development: Strategies and Choices. 3 Credits.
The goal of this course is to acquire a command of the fundamentals of economic development from the community's perspective. This is done by reading and absorbing the theoretical literature on economic development from the fields of urban politics, planning, sociology, economics, political science, and sociology.
Grading status: Letter grade
Same as: PUBA 770.

POLI 771. Modern Political Theory. 3 Credits.
An introduction to modern political thought, its major thinkers and issues.
Grading status: Letter grade.

POLI 773. Major Issues in Political Theory. 3 Credits.
An introduction to the major issues of political theory, with emphasis on the major thinkers in the history of Western political thought.
Grading status: Letter grade.

POLI 774. Classical Political Theory. 3 Credits.
An introduction to ancient and medieval political thought, its major thinkers and issues.
Grading status: Letter grade.

POLI 775. American Political Theory. 3 Credits.
Survey of issues and problems in American political thought, with analysis of major thinkers and selected topics and emphasis on the role of family, society, and economy in political theory.
Grading status: Letter grade.

POLI 776. Recent and Contemporary Political Theory. 3 Credits.
An introduction to recent and contemporary political thought, its major thinkers and issues. Emphasis on Continental thought.
Grading status: Letter grade.

POLI 777. Major Figures in Political Theory. 3 Credits.
An in-depth study of the primary and secondary literature on one or two major figures in the history of political thought (e.g., Plato, Machiavelli, Hobbes, Marx).
Grading status: Letter grade.

POLI 778. The Formal Theory of Institutions. 3 Credits.
This course is a comprehensive introduction to the burgeoning literature on the formal theory of institutions.
Grading status: Letter grade.

POLI 780. Scope and Methods of Political Research. 2 Credits.
Permission of the instructor. A discussion of the theory and process of political analysis, including philosophy of science, research design, the methods of drawing causal inferences, and of generating data.
Grading status: Letter grade.

POLI 782. Logic of Political Inquiry. 3 Credits.
A critical examination of models of political inquiry. Empirical (naturalist), interpretive, and critical metatheories are considered in terms of each model's ontological, epistemological, and practical/political consequences and presuppositions.
Grading status: Letter grade.

POLI 783. Probability and Statistics. 4 Credits.
Introduction to probability theory and basic principles of statistical inference, including estimation and tests of hypotheses; basic programming in R.
Grading status: Letter grade.

POLI 784. Regression Models. 4 Credits.
Introduction to linear and nonlinear regression models for continuous and categorical data. Topics include ordinary least squares estimation, maximum likelihood estimation, casual inference for observational studies, graphical model interpretation techniques, and data analysis in R.
Grading status: Letter grade.

POLI 786. Time Series Analysis of Political Data. 3 Credits.
Discusses the problems that arise when regression methodologies are applied to time series and pooled time series data.
Requisites: Prerequisite, POLI 784; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

POLI 787. Advanced Topics in Political Data Science. 3 Credits.
Survey of important contemporary trends in advanced data analysis. Likely topics include multilevel models, measurement models, machine learning, modeling dependence, and advanced computation in R.
Requisites: Prerequisites, POLI 783 and 784.
Grading status: Letter grade.

POLI 788. Statistics and Data Analysis for Political Science and Policy Research. 3 Credits.
This course focuses on the application of statistical analysis to quantitative data in order to study theoretically and substantively interesting questions about politics and policy.
Grading status: Letter grade.

POLI 789. Game Theory. 3 Credits.
This class provides graduate students with an introduction to game theoretic modeling, focusing on noncooperative game theory. Topics covered include normal form games, extensive-form games, and games of incomplete information.
Grading status: Letter grade.

POLI 790. Positive Political Theory. 3 Credits.
This seminar surveys applications of rational choice models across the subfields of political science. It also considers critiques of national choice approaches and alternative theoretical approaches to modeling human behavior.
Grading status: Letter grade.

POLI 791. Game Theory II. 3 Credits.
This course is designed for students who desire greater proficiency in the more advanced topics. The course focuses on games of incomplete information that are widely used in political science like signaling and cheap-talk games and on topics that are starting to play a prominent role like principal agents models.
Requisites: Prerequisite, POLI 789.
Grading status: Letter grade.

POLI 792. Research Seminar in Political Communication. 3 Credits.
Participants consider the scientific literature and conduct innovative research. Topics focus on different media institutions' structure, political actors' communication strategies, and the ways that citizens engage with social, print, and electronic media. The aim is to better understand political news, public opinion, and the character of electoral democracy.
Grading status: Letter grade.

POLI 801. Judicial Behavior Research. 3 Credits.

POLI 803. Seminar on Application of Political Behavior Research to Public Problems. 3 Credits.
Exploration and examination of the ways in which political behavior research can be applied to understanding and ameliorating public problems.
Grading status: Letter grade.

POLI 811. Seminar in Political Sociology. 3 Credits.
The relationships between social structure and political decisions. Regimes and social structure; bureaucracies, political associations, and professions; science and politics; closed and open politics; political movements and change.
Grading status: Letter grade
Same as: SOCI 811.

POLI 813. Comparative Welfare States. 3 Credits.
This course examines the development, achievements, present crisis, and future of welfare states in advanced industrial democracies.
Grading status: Letter grade
Same as: SOCI 813.

POLI 816. Influential Works in Democracy. 3 Credits.
The course covers the major traditions of democratic theory from ancient Greece to the present, ethnographies on political organization, and 19th- and 20th-century observations on democracy.
Grading status: Letter grade
Same as: SOCI 816.

POLI 830. European Politics. 3 Credits.
Active participation of students in a research project on career motives and ethical principles in European countries.
Grading status: Letter grade.

POLI 831. Comparative European Societies. 3 Credits.
Examination of commonalities and differences of European societies and of the tensions and difficulties attending the European integration process.
Grading status: Letter grade.

POLI 846. Seminar in International Communication. 3 Credits.
Reading and research in selected topics. Focus in recent years has included global news flow, communication and social change, communication in the collapse of communism, Western dominance in international communication, global culture, and the influence of technology.
Requisites: Prerequisite, MEJO 446; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: MEJO 846.

POLI 850. Theories of International Politics. 3 Credits.
Topics relating to the development of theory in the realm of international politics.
Grading status: Letter grade.

POLI 851. Seminar in International Relations. 3 Credits.
Special topics in international relations, such as alliances, bargaining, decision making, economic interdependence, and international human rights.
Grading status: Letter grade.

POLI 852. U.S.-E.U. Lecture Series. 1 Credit.
One credit course designed to enhance students' understanding of transatlantic studies through lectures from and discussion with experts in the field. Topics will focus on European Union and/or United States foreign and domestic politics as well as on contemporary transatlantic relations.
Grading status: Letter grade.

POLI 853. Political Economy of International Money and Finance. 3 Credits.
Investigates the linkages between politics and economics in various realms of global finance, including exchange rates, sovereign debt, and foreign direct investment. Consider efforts to govern global finance, as well as the intersections between domestic politics and the international economy. Classical works and recent research in this area.
Grading status: Letter grade.

POLI 870. Seminar in Political Theory. 3 Credits.
Special topics in political theory such as Marxism and Socialism, Democratic theory, contemporary political thought, or related topics.
Grading status: Letter grade.

POLI 880. Design and Analysis of Experiments and Surveys. 3 Credits.
Introduction to the use of experimental and survey research methods in political science. Topics include: factorial designs, repeated measures design, ANOVA, sampling theory, survey errors and costs, and questionnaire design.
Requisites: Prerequisites, POLI 780 and 783.
Grading status: Letter grade.

POLI 881. Teaching Political Science. 1.5 Credit.
This course is designed to train graduate students to serve as teaching assistants. It will focus on how to teach at UNC and how to run a good section. Topics covered will include rules and regulations, resources available through student services, emergency procedures, classroom management, how to stimulate discussion and keep up participation, and how to develop supplementary syllabi.
Grading status: Letter grade.

POLI 882. Fall Friday Lecture Series on Trans-Atlantic Topics. 1 Credit.
This course is designed to enhance students' understanding of trans-Atlantic studies through lectures from and discussion with experts in the field.
Grading status: Letter grade.

POLI 883. Introduction to Bayesian Modeling for Political & Social Research. 3 Credits.
Introduction to Bayesian modeling and data analysis. The course focuses on basic Bayesian and MCMC theory, as well as applications in the context of common regression and measurement models, including multilevel (generalized) linear models, mixture models, item-response theory models and models for text classification. Basic knowledge of mathematical statistics is desirable, and working knowledge of both the R programming language and the maximum likelihood estimation framework is required.
Requisites: Prerequisite, POLI 784.
Repeat rules: May be repeated for credit. 3 total credits. 2 total completions.
Grading status: Letter grade.

POLI 888. Applying Data Analysis to Transatlantic Studies. 3 Credits.
This course is designed to get students to expand multivariate data analysis skills and to think critically about the presentation of information in professional settings and the media. A key goal is to give participants the confidence to critically evaluate whether the presentation of data is professionally sound. Another central goal is to expand skills in multivariate analysis by engaging in a semester-long research project that culminates in a publication quality paper.
Requisites: Prerequisite, POLI 788.
Grading status: Letter grade.

POLI 890. Directed Readings in Political Science. 1-21 Credits.
Permission of the department. Directed readings in a special field under the direction of a member of the graduate faculty.
Grading status: Letter grade.

POLI 891. Special Topics in Political Science. 1-3 Credits.
Permission of the instructor. Seminar in selected areas of political science. Topics vary from year to year. May be repeated for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

POLI 993. Master's Research and Thesis. 3 Credits.

POLI 994. Doctoral Research and Dissertation. 3 Credits.

PROFESSIONAL SCIENCE MASTER'S PROGRAMS (GRAD)

Contact Information

Professional Science Master's Programs
Visit Program Website (http://psm.unc.edu)

Leah Townsend, Director
ltownsend@unc.edu

Professional Science Master's (P.S.M.) programs prepare graduates to thrive in science, technology, engineering, and mathematics (STEM) careers by providing both high-rigor technical skills and the business fundamentals required to understand and navigate the science workplace. Three Professional Science Master's programs are offered at UNC–Chapel Hill: Biomedical and Health Informatics (https://psm.unc.edu/bmhi), Digital Curation and Management (https://psm.unc.edu/digital-curation), and Toxicology (http://psm.unc.edu/toxicology). Students participate in advanced, graduate-level STEM coursework to enter the workforce understanding the cutting edge of their scientific field. Students also gain a breadth of business knowledge in areas such as professional communication, leading and managing, financial accounting, and project management. A 400-hour internship is required and provides an opportunity to work within a real-world team environment and participate in projects that incorporate the STEM and business knowledge of each Professional Science Master's program.

The STEM coursework is led by world-renowned UNC–Chapel Hill faculty who understand the most up-to-date advances in their field. Kenan–Flagler Business School faculty and experienced professionals teach the business fundamentals. There is opportunity to engage in interdisciplinary team projects and interact with business leaders in your degree field. Additional details can be viewed at the Professional Science Master's program's Web site (http://psm.unc.edu).

Professional Science Master's programs are available in

- Biomedical and Health Informatics (p. 374)
- Digital Curation and Management (https://psm.unc.edu/digital-curation)
- Toxicology (p. 630)

All programs can be completed in 16 months of full-time study. Part-time options are available if students would like to continue working while enrolled. Both the Biomedical and Health Informatics program and the Digital Curation and Management program can be completed entirely online. Courses for our residential and online programs can be selected from a variety of participating departments to tailor the degree to students' professional needs.

Affiliated with the National Professional Science Master's Association (http://www.npsma.org), our programs meet the highest requirements of a P.S.M. program. External boards for both programs consist of leaders within industry, nonprofit, and government organizations. These leaders inform the curriculum and keep the programs responsive to workforce needs.

GRAD

Graduate-level Courses

GRAD 710. Professional Communication: Writing. 1.5 Credit.
This writing-intensive, seminar-style course focuses on crafting effective email messages, short reports, and executive summaries in professional settings. Key topics include content selection, organization, accessibility, plain language, clarity and conciseness, tone, and graphic displays of information. This course requires a strong command of English.
Grading status: Letter grade.

GRAD 711. Professional Communication: Presenting. 1.5 Credit.
This speaking-intensive, seminar-style course focuses on presenting complex topics using plain language in professional settings. Key topics include selecting and organizing content, developing audience-centered visual aids, incorporating storytelling, projecting a professional image, and managing Q & A. This course requires a strong command of English.
Grading status: Letter grade.

GRAD 712. Leadership in the Workplace. 1.5 Credit.
Effective leadership begins with understanding your capacity to influence others positively. This course examines your current leadership style and addresses the relationship of that style to leadership development opportunities including influencing team dynamics, building productive relationships and managing change as a professional and a leader.
Grading status: Letter grade.

GRAD 713. Applied Project Management: Frameworks, Principles and Techniques. 1.5 Credit.
This course focuses on practical project management principles and techniques, demonstrating their effectiveness in the workplace. Key topics include frameworks and methodologies, planning and monitoring projects, risk management, stakeholder management, managing your team, and time and cost management. This course will include group work.
Grading status: Letter grade.

GRAD 714. Introduction to Financial Accounting. 1.5 Credit.
This course will teach the basics of Financial Accounting, including the Balance Sheet, the Income Statement, and the Statement of Cash Flows and Budgeting. The final presentation will incorporate financial skills and knowledge that can be used to support a future project proposal to business managers in an organization.
Grading status: Letter grade.

GRAD 715. Building Your Leadership Practice. 0.5 Credits.
Building on the development plan established in that program, students explore unique opportunities for practice available in their work environments They will identify two areas of focus, based on their identified strengths and areas for growth, to map out a long-term practice schedule.
Requisites: Prerequisite, GRAD 712.
Grading status: Letter grade.

GRAD 720. Team-based Consulting for Technology Commercialization. 3 Credits.
Permission of PSM Program Director is required. Course matches student teams with a small business that has received a phase 1 SBIR. Students will be guided through development of a commercialization plan. Topics include: conducting market research and analysis of findings, intellectual property protection, team selection, and business model alternatives.
Grading status: Letter grade.

GRAD 721. Research Ethics. 1 Credit.
This class introduces current and future researchers to the rewards of and obstacles to research: the causes and consequences of misconduct; the rights and obligations of professionals; the habits of excellent mentors. The course will give an overview of traditional ethical theories, such as utilitarian and Kantian theories, and challenge students to apply those theories to their own research and practice. NOTE: This course will not satisfy the NIH Responsible Conduct of Research (RCR) requirement.
Grading status: Pass/Fail.

GRAD 725. Build Your Professional Brand: Develop Job Search Skills and Materials to Make Employers Notice You. 1.5 Credit.
Building effective job search strategies, materials, and a strong online presence is essential for career success inside and outside the academy. Work with professionals with expertise in all areas of the job search process to develop your brand including a LinkedIn profile, resume/CV, cover letters and identify your job values and job skills and develop a Professional Development Plan. Interactive sessions will provide the setting to develop/refine your materials and your career approach.
Grading status: Letter grade.

GRAD 726. Business Fundamentals - Special Topics. 1 Credit.
This seminar series will introduce students to many of the topics essential to the workplace including the structure and culture of a variety of organizations, interpersonal skills in the workplace, and more. Broadly, the series will reinforce concepts taught in the GRAD business fundamentals/professional skills classes by placing them in the context of career paths that are of interest to students.
Grading status: Letter grade.

GRAD 735. Regulatory Toxicology-Interacting with regulatory agencies & approval for drug, device, and chemical. 3 Credits.
Regulatory agency fundamentals, regulatory process for drug, medical device, cosmetic and agrochemical products. Industry, regulatory agency representatives and consultants will be invited to speak directly about their regulatory policies, challenges, and expectations. Students will develop and present a regulatory submission package as part of a group project.
Grading status: Letter grade
Same as: TOXC 735.

GRAD 750. Innovations to Impact: The Translation of Scientific Research into Societal Benefit. 1.5 Credit.
Most scientific research takes place in major academic universities. The knowledge, discoveries, and innovations emanating from breakthrough research can have societal impact by many avenues, namely translated into public policy, programs, products and services. This course provides an understanding of the value of translating science and processes involved in translation.
Grading status: Letter grade.

GRAD 751. Consulting Fundamentals For Adv. Professional Degree Graduate Students. 1.5 Credit.
The course covers the fundamental skills required in consulting: defining the problem, gathering relevant information, analyzing data, synthesizing findings, drawing conclusions, developing recommendations, and communicating those recommendations.
Grading status: Letter grade.

GRAD 755. Fundamentals of Technology Commercialization. 1.5 Credit.
This course provides an overview of the fundamental first steps of technology commercialization, with a specific emphasis on university technology commercialization (aka technology transfer). The course will cover the following topics: Market Assessment, Intellectual Property, Technology Development, Licensing, Commercial Development, and University Startups. Permission from the instructor required.
Grading status: Letter grade.

GRAD 770. Introduction to Digital Transformation. 1.5 Credit.
The Digital Revolution is transforming the way we live and work - from technology-driven to human-centered; from point solutions to end-to-end; and from fragmented to integrated. The course is designed to provide an overview and introduction to transformational principles for individuals, organizations, and industry ecosystems. Students will explore new models of engagement, persona discovery, value mapping, and systems thinking to anchor them to the critical attributes of the digital revolution.
Grading status: Letter grade.

GRAD 989. Professional Science Master's Internship/Practicum. 1-3 Credits.
A PSM internship is a planned, individualized, mentored, evaluated, experiential learning opportunity that serves as a bridge between a student's academic training and non-academic practice. Students complete the practicum/internship and accompanying paper and report in their first year of study as a substitute for the master's thesis and comprehensive exam.
Grading status: Letter grade.

DEPARTMENT OF PSYCHOLOGY AND NEUROSCIENCE (GRAD)

Contact Information

Department of Psychology and Neuroscience
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The Department of Psychology and Neuroscience offers training for the doctor of philosophy degree in six areas of psychology: behavioral and integrative neuroscience, clinical, cognitive, developmental, quantitative, and social. Each program is designed to acquaint students thoroughly with the theoretical and research content of a particular specialty and to train them in the research skills needed to become competent, creative investigators in their specialty area. In addition, the programs focus on the development of competence in appropriate professional skills.

While many of the requirements for a Ph.D. degree vary with the specialty program, certain requirements apply to all psychology graduate students. Each student must

1. Engage in research during each year of enrollment
2. Pass a Ph.D. written examination
3. Pass a Ph.D. oral examination
4. Submit an acceptable dissertation and pass a final oral examination
5. In most cases, serve as a teaching assistant or teach a course for at least one academic year

Additional information about graduate training in these areas may be obtained from the department's Web site (http://psychology.unc.edu). New students are accepted for admission in the fall semester only. Individuals seeking the M.A. degree only are not accepted.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Jonathan Abramowitz (231), Psychopathology, Prevention, and Treatment of Anxiety and Related Problems, Especially Obsessive-Compulsive Disorder
Jennifer Arnold (221), Psychological Processes Underlying Language Production and Comprehension in Both Adults and Children
Anna Bardone-Cone (239), Etiology and Maintenance of Bulimia Nervosa with Particular Interests in the Roles of Perfectionism, Self-Efficacy, and Stress; Sociocultural Factors (Race/Ethnicity, Family, Media) in Relation to Body Image and Eating Disorders; Defining "Recovery" from an Eating Disorder
Donald H. Baucom (104), Couple Therapy, Individual Psychopathology, and Couple Functioning; Health Concerns in a Couple/Family Context
Daniel Bauer (224), Structural Equation Models, Multilevel Models, Mixture Models, Analysis of Change
Kenneth Bollen (268), Structural Equation Models, Longitudinal Methods, Latent Curve Models
Regina M. Carelli (187), Neurobiology of Reward, Drug Abuse, Behavioral Neurophysiology
Patrick J. Curran (195), Structural Equation Modeling, Longitudinal Data Analysis, High-Risk Adolescent Development
Stacey Daughters (263), Addictive Disorders, Etiologic Predictors of Disorder Onset, and Predictors of Treatment Failure or Relapse; Distress Tolerance as an Individual Predictor
Barbara Fredrickson (229), Emotions; Positive Emotions; Social, Cognitive, and Physical Effects of Pleasant Emotional States; Flourishing Mental Health
Karen M. Gil (181), Health Psychology, Chronic Illness, Stress and Coping, Pain Management, Cancer Survivorship
Kelly Giovanello (232), Cognitive Neuroscience of Human Learning and Memory; Behavioral, Neuropsychological, and Functional Neuroimaging Studies of Relational Memory
Peter C. Gordon (170), Psychology of Language, Cognitive Neuroscience
Joseph B. Hopfinger (198), Neural Mechanisms of Visual Attention; Electrophysiological, Neuroimaging, and Eye-Tracking Studies of Attentional Control, Effects of Memory on Attention
Andrea M. Hussong (188), Adolescent Substance Use; Models of Peer, Family, and Affective Risk
Deborah Jones (223), Family Transmission of Mental and Physical Health in Underserved and At-Risk Families and the Development and Implementation of Family-Based Prevention and Intervention Programs for These Groups
Beth E. Kurtz-Costes (142), Development of Motivational Beliefs in Childhood and Adolescence, Family and Cultural Influences on Development
Donald T. Lysle (155), Neuroimmunology, Neurobiology of Drug Abuse, Evolutionary Theory
Neil Mulligan (211), Cognitive Psychology, Human Memory, Implicit vs. Explicit Memory, Episodic Memory, Attention and Memory
Abigail T. Panter (144), Evaluation, Measurement, Advanced Quantitative Methods, Survey Methodology, Personality, Educational Diversity in Higher Education
Keith Payne (227), Social Cognition, Stereotyping, Prejudice, Emotions
David L. Penn (196), Social Cognition and Social Impairment in Schizophrenia, Stigma, Cognitive-Behavior Therapy for Severe Mental Illness
Mitch Prinstein (222), Developmental Psychopathology, Interpersonal Models of Adolescent Depression and Suicide, Peer Contagion of Health Risk Behaviors
Paschal Sheeran (267), Self-Regulation; How People Direct Their Own Thoughts, Feelings, and Behaviors to Achieve Their Goals
Todd Thiele (203), Neurobiology and Genetics of Alcoholism, Conditioned Taste Aversion Learning, Food Intake and Body Weight Regulation
David M. Thissen (157), Psychometrics, Item Response Theory, Statistical Models for Developmental Data, Graphical Data Analysis
Eric Youngstrom (230), Bipolar Disorder across the Life Cycle, Emotions, Clinical Assessment, Developmental Psychopathology

Associate Professors

Sara Algoe (250), Role of Emotions in Social Interactions, Cumulative Influence of Positive Emotions
Charlotte Boettiger (234), Cognitive Neuroscience of Addiction, Executive Function, Functional Neuroimaging, Behavioral Pharmacology, Brain Mechanisms of Substance Abuse Treatments, Modulation of Decision-Making by Genetics, Hormones, and Late Adolescent Development
Carol Cheatham (199), Nutrition Individuality and Its Effects on the Development of Cognitive and Social Behaviors
Shauna Cooper (274), Cultural and Contextual Factors that Contribute to Positive Youth Development, African American Adolescents and Families
Jean-Louis Gariepy (153), Development and Evolution of Social Behavior, Early Social Development in Children, Quantification of Social Networks
Kurt Gray (256), Moral Psychology and Mind Perception, Structure of Morality, Emotional Experiences Relative to the Intentions of Others
Kristen Lindquist (257), Emotions and Affective Neuroscience, Basis of Human Emotion
Enrique Neblett (237), Racism-Related Stress Experiences, Coping, Cardiovascular Psychophysiology, African American Child and Adolescent Mental Health

Assistant Professors

Jessica Cohen (271), Functional Brain Network Interactions and Reconfigurations When Confronted with Charging Cognitive Demands
Kathleen Gates (265), Development and Application of Advanced Statistical Models for the Analysis of Individual-Level Human Behavior and Processing, Novel Methodologies for Detecting Signal from Noise in Time-Series Functional MRI Data
Sylvia Fitting (269), Drug Abuse and HIV-1 Comorbidity, Determining the Cellular, Structural, and Molecular Mechanisms Underlying Opioid Interaction with NeuroAIDS
Oscar Gonzalez(275), Statistical Mediation, Machine Learning/Data Mining, and Psychometrics
Keely Muscatell (273), Social Experiences Influencing Physical Health and Emotional Well-Being, Incorporating Techniques from Social Neuroscience and Psychoneuroimmunology
Kathryn Reissner (266), Modifications of Cellular Dynamics and Synaptic Strength and Control of Behavior, Brain Changes Stemming from Chronic Exposure to Drugs of Abuse
Margaret Sheridan (270), Neural Mechanisms, Attention-Deficit and Hyperactivity Disorder in Early Childhood, Typical and Atypical Development of Prefrontal Cortex
Eva Telzer (272), Adolescent Brain Development, Prosocial and Antisocial Behaviors, Family and Peer Relationships, and Long-Term Psychological Well-Being

Clinical Professors

Erica Wise (214), Psychotherapy with Adolescents and Adults, Legal and Ethical Issues in Clinical Psychology, Training Clinic Outcomes Research
Jennifer Youngstrom (233), Empirically Supported Treatments and Effectiveness Research with Children and Adolescents, Transporting Treatments into the Community, Assessment, Treatment of Childhood Mood Disorders, Supervision and Training

Professors Emeriti

Elliot Cramer
David A. Eckerman
Samuel Fillenbaum
Mark Hollins
Chester A. Insko
Robert C. MacCallum
Paul Shinkman
Vaida D. Thompson

PSYC

Advanced Undergraduate and Graduate-level Courses

PSYC 404. Clinical Psychopharmacology. 3 Credits.
This course will investigate the pharmacological effects and the clinical efficacy of drugs used to treat behavior disorders.
Requisites: Prerequisite, PSYC 101.
Gen Ed: PL.
Grading status: Letter grade.

PSYC 430. Human Memory. 3 Credits.
This course explores classic and current issues in the study of human memory. Topics include working memory, encoding and retrieval processes, implicit memory, reconstructive processes in memory, eyewitness memory, developmental changes in memory, neuropsychology and neuroscience of memory and memory disorders, memory improvement, and the repressed/recovered memory controversy.
Requisites: Prerequisites, PSYC 101, and 222 or 230.
Gen Ed: PL.
Grading status: Letter grade.

PSYC 432. Psychology of Language. 3 Credits.
Recommended preparation, PSYC 230 or LING 101 or LING 400. This course examines the mental representations and cognitive processes that underlie the human ability to use language. Covers what people know about language, how they process it, and how people make inferences about the speaker's meaning based on context. Recent work in experimental psycholinguistics is discussed.
Requisites: Prerequisite, PSYC 101.
Grading status: Letter grade.

PSYC 433. Behavioral Decision Theory. 3 Credits.
Simple mathematical and psychological models of judgment and choice, and related experiments, are treated, as are applications to real world problems in medical, environmental, policy, business, and related domains.
Requisites: Prerequisite, PSYC 101.
Gen Ed: PL.
Grading status: Letter grade.

PSYC 438. Research Topics in the Psychology of Language. 3 Credits.
Examines the cognitive mechanisms behind language comprehension, focusing on how we make predictions about the speaker's meaning, based on context, background, gestures, and other cues. In this course-based undergraduate research experience (CURE), groups of students generate novel research questions, perform their own research experiments, and present the results in spoken and written format.
Requisites: Prerequisite, PSYC 270; recommended preparation, at least one course in linguistics (PSYC 432, any LING course, or any course with a substantial linguistics component).
Gen Ed: SS, CI, EE- Mentored Research.
Grading status: Letter grade.

PSYC 461. Cognitive Development. 3 Credits.
An examination of the development of attention, perception, learning, memory, and thinking in normal children.
Requisites: Prerequisites, PSYC 101 and 250.
Gen Ed: PL.
Grading status: Letter grade.

PSYC 463. Development of Social Behavior and Personality. 3 Credits.
Developmental processes during early childhood as these relate to social behavior and personality.
Requisites: Prerequisites, PSYC 101 and 210.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 465. Poverty and Development. 3 Credits.
Poverty is one of the most consistent and influential risk factors for problematic development. This course focuses on the scientific study of how poverty affects development across the human life span.
Requisites: Prerequisites, PSYC 101 and 250.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 467. The Development of Black Children. 3 Credits.
PSYC 210 or 215 recommended. A survey of the literature on the development of black children. Topics include peer and social relations, self-esteem, identity development, cognitive development, school achievement, parenting, family management, and neighborhood influences.
Requisites: Prerequisites, PSYC 101 and 250.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 468. Family as a Context for Development. 3 Credits.
Explores how the family influences children's development. Topics include family theories, genetics, family structure (e.g., single parents, working mothers, divorce), discipline, parent behavior and values and beliefs, fathers and ethnic diversity.
Requisites: Prerequisites, PSYC 101, 210, and 250.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 469. Evolution and Development of Biobehavioral Systems. 3 Credits.
Examines the evolution and development of behavior patterns and their physiological substrates.
Requisites: Prerequisites, BIOL 101 and PSYC 101, 210, or 215.
Gen Ed: PL.
Grading status: Letter grade.

PSYC 471. The Study of Adolescent Issues and Development. 3 Credits.
The developmental period of adolescence is studied from a multidisciplinary perspective. The course will distinguish among early, middle, and late adolescence and will cover several theoretical perspectives.
Requisites: Prerequisites, PSYC 101, 210, and 250.
Grading status: Letter grade.

PSYC 472. Racial Discrimination and Minority Youth. 3 Credits.
This course examines the effects of racial discrimination among African American, Latino, Asian American, and Native American adolescents using a psychological perspective to critically examine empirical research. The course examines racial discrimination, power, and equity and is recommended for students interested in serious, thought-provoking discussions.
Requisites: Prerequisites, PSYC 101, 210, 250, and 260.
Gen Ed: SS, US.
Grading status: Letter grade.

PSYC 490. Current Topics in Psychology. 3 Credits.
Various special areas of psychological study, offered as needed. Course may be repeated for credit. Honors version available
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 2 total completions.
Grading status: Letter grade.

PSYC 490H. Current Topics in Psychology. 3 Credits.
Various special areas of psychological study, offered as needed. Course may be repeated for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 2 total completions.
Grading status: Letter grade.

PSYC 493. Internship in Psychology. 3 Credits.
Required preparation, minimum of two other psychology courses and junior/senior standing. Designed for highly motivated psychology majors interested in exploring professional opportunities in psychology-related areas. Students complete hands-on internships at community sites for approximately 120 hours across the semester. Students also attend a weekly one-hour class with other interns.
Requisites: Prerequisite, PSYC 101.
Gen Ed: EE- Academic Internship.
Grading status: Letter grade.

PSYC 500. Developmental Psychopathology. 3 Credits.
A survey of theories bearing on atypical development and disordered behavior, and an examination of major child and adolescent behavior problems and clinical syndromes.
Requisites: Prerequisites, PSYC 101, 245, and 250.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 501. Theoretical, Empirical Perspectives on Personality. 3 Credits.
An in-depth coverage of the traditional clinically based personality theories of the early 20th century contrasted with more recent empirically based perspectives.
Requisites: Prerequisite, PSYC 101.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 502. Psychology of Adulthood and Aging. 3 Credits.
A developmental approach to the study of adulthood, from young adulthood through death. Topics include adult issues in personality, family dynamics, work, leisure and retirement, biological and intellectual aspects of aging, dying, and bereavement.
Requisites: Prerequisites, PSYC 101 and 250.
Gen Ed: SS, EE- Service Learning.
Grading status: Letter grade.

PSYC 503. African American Psychology. 3 Credits.
This course examines race and culture in the psychological processes and behavior of African Americans.
Requisites: Prerequisite, PSYC 101.
Gen Ed: SS, US.
Grading status: Letter grade.

PSYC 504. Health Psychology. 3 Credits.
An in-depth coverage of psychological, biological, and social factors that may be involved with health.
Requisites: Prerequisites, PSYC 101 and 245.
Gen Ed: PL.
Grading status: Letter grade.

PSYC 512. Popularity, Friendship, and Peer Relations. 3 Credits.
This course will review literature regarding peer relations among children and adolescents, including peer acceptance/rejection, popularity, bases of friendship selection, peer crowds, romantic relationships, and theories of peer influence.
Requisites: Prerequisite, PSYC 101.
Grading status: Letter grade.

PSYC 514. Mania and Depression. 3 Credits.
The social, developmental, and biological contributions to mania and depression are examined, as well as the impact of these moods on the brain, creativity, relationships, quality of life, and health.
Requisites: Prerequisites, PSYC 101 and 245.
Grading status: Letter grade.

PSYC 517. Addiction. 3 Credits.
PSYC 245 and 270 recommended but not required. This course will provide students with a comprehensive overview of the etiology and treatment of addiction, along with exposure to real-life stories of addiction.
Requisites: Prerequisite, PSYC 101.
Gen Ed: PL.
Grading status: Letter grade.

PSYC 525. Psychological Archival Data Science. 3 Credits.
This course addresses techniques in answering new questions with existing data. Students will learn about data from multiple perspectives: different data source and types, intended audiences, and visualization, analysis, and presentation formats. This will make students more savvy consumers as well as producers of data.
Requisites: Prerequisites, PSYC 270 and 245 or 500.
Gen Ed: CI, EE- Mentored Research, QI.
Grading status: Letter grade.

PSYC 530. Design and Interpretation of Psychological Research. 3 Credits.
Emphasis on the methodological principles underlying experimental and correlational research. Interaction of theory and practice in the design and interpretation of psychological studies. This is a course-based undergraduate research experience (CURE).
Requisites: Prerequisites, PSYC 101 and 270.
Gen Ed: PL, CI, EE- Mentored Research, QI.
Grading status: Letter grade.

PSYC 531. Tests and Measurement. 3 Credits.
Basic psychometric theory underlying test construction and utilization. Detailed study of issues and instruments used in assessing intellectual functioning, educational progress, personality, and personnel selection.
Requisites: Prerequisites, PSYC 101 and 210.
Gen Ed: SS, QI.
Grading status: Letter grade.

PSYC 532. Quantitative Psychology. 3 Credits.
This course examines the science of quantitative psychology. Topics include the analysis of data, the design of questionnaires, and the assessment of psychological attributes, among others. Honors version available
Requisites: Prerequisite, PSYC 210, SOCI 252, or STOR 155.
Grading status: Letter grade.

PSYC 532H. Quantitative Psychology. 3 Credits.
This course examines the science of quantitative psychology. Topics include the analysis of data, the design of questionnaires, and the assessment of psychological attributes, among others.
Requisites: Prerequisite, PSYC 210 or 215 or SOCI 252 or STOR 155.
Grading status: Letter grade.

PSYC 533. The General Linear Model in Psychology. 3 Credits.
Consideration of multiple regression and the general linear model in psychological research, including hypothesis testing, model formulation, and the analysis of observational and experimental data. Honors version available
Requisites: Prerequisite, ECON 400 or PSYC 210 or SOCI 252 or STOR 155.
Grading status: Letter grade.

PSYC 533H. The General Linear Model in Psychology. 3 Credits.
Consideration of multiple regression and the general linear model in psychological research, including hypothesis testing, model formulation, and the analysis of observational and experimental data.
Requisites: Prerequisite, ECON 400 or PSYC 210 or SOCI 252 or STOR 155.
Grading status: Letter grade.

PSYC 534. Introduction to Computational Statistics. 3 Credits.
Introduction to programming and the implementation of statistical techniques. Topics include data manipulation, graphical procedures, writing loops and functions, data simulation, use of regular expressions, and scraping data from the web.
Requisites: Prerequisite, PSYC 210, 215, SOCI 252, or STOR 155.
Gen Ed: PL, QI.
Grading status: Letter grade.

PSYC 559. Applied Machine Learning in Psychology. 3 Credits.
As opposed to hypothesis-driven data analysis, machine learning takes an exploratory and predictive approach to data analysis. This course introduces machine learning approaches in psychology to identify important variables for prediction and uncover complex patterns in datasets, such as nonlinearity, interactions, or clusters. Classes include theoretical lectures and hands-on examples.
Requisites: Prerequisites, PSYC 101 and 210.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 561. Social Cognition. 3 Credits.
Theory and research in social psychology, which explores the cognitive processes underlying social phenomena. Specific topics covered include attributions, emotions, automaticity, heuristics, self, goals, stereotyping, expectancies, social motives, and others. Honors version available
Requisites: Prerequisites, PSYC 101, 210, and 260.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 561H. Social Cognition. 3 Credits.
Theory and research in social psychology, which explores the cognitive processes underlying social phenomena. Specific topics covered include attributions, emotions, automaticity, heuristics, self, goals, stereotyping, expectancies, social motives, and others.
Requisites: Prerequisites, PSYC 101, 210, and 260.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 564. Interpersonal Relationships. 3 Credits.
PSYC 270 Recommended. This advanced course will comprehensively cover the social psychological literature on normally-developing interpersonal relationships, with implications for relationships with family, friends, co-workers, and romantic partners. This is a research-intensive course with a major aspect involving an independent research project to facilitate learning by doing.
Requisites: Prerequisites, PSYC 101, 210, and 260.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 565. Stereotyping, Prejudice, and Discrimination. 3 Credits.
PSYC 270 recommended. Examines the determinants, functions, processes, and consequences of stereotyping, prejudice, and discrimination. Prospects for change are considered. Class presentations and participation required.
Requisites: Prerequisites, PSYC 101, 210, and 260.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 566. Attitude Change. 3 Credits.
A detailed consideration of the theoretical issues in attitude and belief change.
Requisites: Prerequisites, PSYC 101, 210, and 260.
Grading status: Letter grade.

PSYC 567. Research in Positive Psychology. 3 Credits.
Majors only. This advanced course in positive psychology is research intensive and intended as a capstone for majors in psychology.
Requisites: Prerequisites, PSYC 101, 210, and 270.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 569. Practical Wisdom from Advanced Social Psychology. 3 Credits.
Surveys cutting-edge research across the field of social psychology and how it matters for everyday life. Topics include morality, mind perception, judgment and decision making, happiness, affective forecasting, emotion, relationships, negotiation, personality, free will, stress/health, and religion. Clear communication of research also emphasized through figures, presentations, and papers.
Requisites: Prerequisites, PSYC 101, 260, and 270.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 570. The Social Psychology of Self-Regulation. 3 Credits.
PSYC 270 recommended. An intensive review of self-regulation theory and research, focusing on the cognitive, motivational, and affective processes involved in goal commitment, monitoring, and overriding behavioral responses.
Requisites: Prerequisites, PSYC 101, 210, and 260.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 572. Theoretical and Empirical Perspectives on Sex and Gender Differences. 3 Credits.
An in-depth examination of psychological research and theory pertaining to the influence of gender on the lives of men and women. In general, emphasis will be placed on understanding gender as a social psychological construct.
Requisites: Prerequisites, PSYC 101 and 260.
Gen Ed: SS.
Grading status: Letter grade.

PSYC 601. Psychology and Law. 3 Credits.
Examines the legal system from the perspective of psychology methods and research, with a focus on criminal law. Discusses dilemmas within the law and between the legal system and psychology.
Requisites: Prerequisites, PSYC 101 and 210.
Grading status: Letter grade.

PSYC 602. Evolutionary Psychology. 3 Credits.
Major topics of general psychology are examined from an evolutionary perspective with an emphasis on empirical studies asking why much current human behavior and experience would have been adaptive for our early ancestors.
Requisites: Prerequisite, PSYC 101.
Grading status: Letter grade.

PSYC 693H. Honors in Psychology I. 3 Credits.
Required preparation, cumulative GPA of 3.3, psychology GPA of 3.5, in-process or completion of PSYC 395 (or equivalent experience in a faculty research lab), and acceptance through application to the honors committee. To be taken in the fall of the last year of studies as the first course in the two-semester honors sequence. Students conduct research under the direction of a faculty advisor and receive classroom instruction in research-related topics.
Gen Ed: SS, CI, EE- Mentored Research.
Grading status: Letter grade.

PSYC 694H. Honors in Psychology II. 3 Credits.
Admission to the psychology honors program required. To be taken as the second course in the two-semester honors sequence. Students conduct research under the direction of a faculty advisor and receive classroom instruction in research-related topics.
Requisites: Prerequisite, PSYC 693H.
Gen Ed: SS, CI, EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

PSYC 701. Brain & Behavior I. 3 Credits.
Graduate standing required. A survey of psychological and biological approaches to the study of sensory and perceptual information processing, with an emphasis on touch and pain.
Grading status: Letter grade
Same as: NBIO 701A.

PSYC 702. Brain & Behavior II. 3 Credits.
A survey of psychological and biological approaches to the study of basic learning and higher integrative processing.
Grading status: Letter grade
Same as: NBIO 702A.

PSYC 703. Advanced Biological Psychology: Central Nervous System. 3 Credits.
Each fall one special topic will be covered in depth (e.g., neural bases of memory storage, homeostasis, and perception). Format includes lectures and seminar meetings with student presentations.
Requisites: Prerequisite, PSYC 402.
Grading status: Letter grade
Same as: NBIO 703.

PSYC 704. Applications of Experimental Psychology to Health Research. 3 Credits.
This course provides a critical analysis of interdisciplinary research within experimental psychology, including such topics as psychopharmacology, psychoneuroimmunology, psychophysiology, and animal models of brain/behavior disorders.
Grading status: Letter grade
Same as: NBIO 704.

PSYC 705. Behavioral Pharmacology. 3 Credits.
Basic principles of pharmacology and behavior analysis are considered in relation to drugs that affect the central nervous system.
Requisites: Prerequisite, PSYC 404; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: NBIO 705, PHCO 705.

PSYC 707. Clinical Psychopharmacology. 3 Credits.
Examinations of the clinical efficacy, side effects, and neuropharmacological actions of drugs used in the treatment of behavioral disorders. Additional topics include the behavioral and neuropharmacological actions of drugs of abuse.
Grading status: Letter grade.

PSYC 708. Seminar in the Biological Foundations of Psychology. 3 Credits.
Permission of the instructor. Limited to graduate students in psychology and neurobiology. Lectures and seminar presentations on a wide range of topics in the area of physiological psychology.
Repeat rules: May be repeated for credit.
Grading status: Letter grade
Same as: NBIO 708.

PSYC 709. Seminar in Theoretical-Experimental Psychology. 1-3 Credits.
Lectures, discussions, and seminar presentations on current topics in experimental psychology.
Grading status: Letter grade.

PSYC 719. Seminar in Experimental Health Psychology. 3 Credits.
An in-depth treatment of research topics in behavioral and biological aspects of health psychology.
Grading status: Letter grade.

PSYC 720. Research Seminar in Addiction Science I. 3 Credits.
Graduate standing in psychology required. Students design and conduct a supervised research project and engage in critical discussion of research performed by other students and faculty.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 721. Research Seminar in Addiction Science II. 3 Credits.
Graduate standing in psychology required. Students design and conduct a supervised research project and engage in critical discussion of research performed by other students and faculty.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 738. Neurons to Neighborhoods: Contributions to Neurobiological Development and Behavioral Consequences. 3 Credits.
This course provides an overview of what the field of human neuroscience has revealed about neural structure and function with an eye to examining individual differences. Current knowledge about the neural mechanisms supporting cognitive and emotional function will be investigated in depth through chapters, review articles, and empirical studies.
Grading status: Letter grade.

PSYC 739. Cognitive Neuroscience. 3 Credits.
This course will highlight recent research regarding the cognitive and neural architecture of human memory or attention, with the emphasis placed on studies using cognitive neuroscience methods (e.g. fMRI, EPRs).
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 740. Seminar in Cognitive Psychology. 3 Credits.
Permission of the instructor. Discussion and critical evaluation of various theories of thinking; theories of concept formation, problem solving, and reasoning.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 741. Professional Development for Careers in Research. 3 Credits.
Graduate standing required. This course covers research strategies, research collaboration, giving talks, writing review papers, writing research reports, the peer-review editorial process, the grant-proposal process, the academic job search process, and nonacademic career.
Grading status: Letter grade.

PSYC 742. Attention. 3 Credits.
Graduate standing in psychology required. This course will introduce the major issues in attention research and highlight recent work examining the neural mechanisms of attention and its interactions with other cognitive and social-cognitive processes.
Grading status: Letter grade.

PSYC 743. Cognitive Aging. 3 Credits.
This course examines theories of human cognitive aging and how these theories seek to explain age-group differences in various domains of cognitive functioning (e.g., episodic memory, language, judgment).
Grading status: Letter grade.

PSYC 744. Psycholinguistics. 3 Credits.
Graduate standing in psychology required. This seminar addresses the mental processes underlying human's ability to use language at a number of levels. Specific topics vary.
Grading status: Letter grade.

PSYC 746. Seminar in Cognitive Psychology - Human Memory. 3 Credits.
Selective overview of topics in the study of human memory Course will examine the findings from laboratory research to gain a better understanding of memory structure and organization.
Grading status: Letter grade.

PSYC 750. Research Seminar in Cognitive Psychology. 3 Credits.
Graduate standing in psychology required. Students conduct a supervised research project in cognitive psychology, and participate in discussion of current research and related ethical and methodological issues.
Grading status: Letter grade.

PSYC 751. Research Seminar in Cognitive Psychology. 3 Credits.
Graduate standing in psychology required. Students conduct a supervised research project in cognitive psychology, and participate in discussion of current research and related ethical and methodological issues.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 760. Advanced Cognitive Development. 3 Credits.
This course covers the development of attention, perception, learning, memory, thinking, and language, beginning in infancy and covering the life-span from both information processing and Baldwin-Piaget approaches.
Grading status: Letter grade.

PSYC 761. Advanced Social Development. 3 Credits.
Current thinking and research relevant to social, emotional, and personality development across the life span. Topics include parent-child interaction, peer relations, aggression, competence, sex roles, and gender differences.
Grading status: Letter grade.

PSYC 762. Developmental Psychology: Methodology I. 3 Credits.
Philosophical and sociological perspectives on research in developmental psychology, with specific applications to ongoing projects. As announced.
Grading status: Letter grade.

PSYC 763. ETHICS AND PROFESSIONAL ISSUES IN DEVELOPMENTAL PSYCHOLOGY. 3 Credits.
The purpose of this course is to provide an introductory knowledge base of ethical and professional issues that guide the field of Psychology, with specific focus on the field of Developmental Psychology.
Grading status: Letter grade.

PSYC 766. Developmental Psychobiology. 3 Credits.
Provides an introduction to psychobiological research, focusing on early development in animals. Topics include embryology, developmental neurobiology, the development of sensory and communication systems, and social behavior. As announced.
Grading status: Letter grade.

PSYC 767. Advanced Family Theory and Research. 3 Credits.
Research related to family processes, especially regarding the developmental consequences of varying family environments on children. Topics include divorce, cognitive development, single parents, parental employment, discipline, cultural context.
Grading status: Letter grade.

PSYC 768. Seminar in Developmental Psychology. 3 Credits.
Permission of the instructor. Intensive study of selected topics in developmental psychology.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

PSYC 780. Developmental Psychology Forum. 1 Credit.
Permission of the instructor. Presentations of research by faculty, students, and visitors; discussion of professional topics.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 781. Proseminar in Developmental Science. 3 Credits.
Intensive study of selected topics in human development that are being explored by members of the Carolina Consortium on Human Development staff.
Requisites: Prerequisite, permission of the instructor.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 790. History of Psychology. 3 Credits.
Review of the history of major areas of psychology, with special emphasis on the conceptual and methodological underpinnings of the discipline.
Grading status: Letter grade.

PSYC 791. Special Readings in Psychology. 3 Credits.
Permission of the instructor. Intended for advanced graduate students.
Grading status: Letter grade.

PSYC 792. Professional Problems in Psychology. 1 Credit.
Permission of the instructor. Consideration of problems facing academic psychologists.
Grading status: Letter grade.

PSYC 793. Laboratory in College Teaching. 1 Credit.
Specific training in presentational and interpersonal skills needed by college teachers, such as planning, lecturing, discussing, motivating, and evaluating.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 795. Functional Magnetic Resonance Imaging. 3 Credits.
This course provides a comprehensive and rigorous introduction to the technique of functional magnetic resonance imaging (fMRI). Students will learn the basic physics underlying MRI; the biological principles of fMRI, the principles of experimental design, data analysis, the use of available software packages, and special considerations for patient research.
Grading status: Letter grade.

PSYC 796. Seminar in Biomedical Imaging Science. 3 Credits.
This course serves as a gateway course to the Graduate Certificate in Biomedical Imaging Science. This course offers an introduction to the most common imaging modalities, including MR, CT, PET, SPECT, ultrasound, and optical imaging. Lectures include discussions of hardware, physics, as well as pre-clinical and clinical applications.
Grading status: Letter grade
Same as: BMME 796.

PSYC 803. Empirically Validated Approaches to Child and Family Psychotherapy. 3 Credits.
Graduate status in clinical psychology required. This course covers the research bases and clinical application of psychotherapeutic interventions that have demonstrated empirical validity for assisting children and families.
Grading status: Letter grade.

PSYC 804. Empirically Validated Approaches to Adult Psychotherapy. 3 Credits.
Graduate status in clinical psychology required. This course covers the research bases and clinical application of psychotherapeutic interventions that have demonstrated empirical validity for assisting adult clients.
Grading status: Letter grade.

PSYC 806. Clinical Research Methods. 3 Credits.
Graduate status in clinical psychology required. Analysis of clinical and personality research in terms of their contribution to knowledge, their limitations, possibilities for their improvement, further research they suggest, etc. Preparation of individual research proposals for class presentation and critical evaluation. Three hours a week.
Grading status: Letter grade.

PSYC 807. Clinical Research Seminar. 1 Credit.
Graduate standing in clinical psychology required. Designing and presenting research proposals in individual students' research areas in oral and written form. Critiquing research proposals. Research ethics and preparing and evaluating protocols for ethical review.
Requisites: Prerequisite, PSYC 806.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 809. Adult Psychopathology. 3 Credits.
First-year graduate status in clinical psychology required. The major forms of psychopathology are examined within a development framework.
Grading status: Letter grade.

PSYC 810. Developmental Psychopathology. 3 Credits.
First-year graduate status in clinical psychology required. The major forms of psychopathology are examined within a development framework.
Grading status: Letter grade.

PSYC 811. Adult Practicum. 3 Credits.
Second-year graduate status in clinical psychology required. Supervised experience in psychological assessment and psychotherapy. Six to eight laboratory hours a week.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 812. Child and Adolescent Practicum. 3 Credits.
Second-year graduate status in clinical psychology required. Supervised experience in psychological assessment and psychotherapy. Six to eight laboratory hours a week.
Grading status: Letter grade.

PSYC 813. Advanced Adult Assessment. 3 Credits.
Graduate standing in clinical psychology required. Consideration of how various forms of assessment data can be utilized in understanding the structure and dynamics of adult personalities; problems of differential diagnosis, brain damage, etc., are also considered. Two lecture and two laboratory hours a week.
Grading status: Letter grade.

PSYC 814. Advanced Child Assessment. 3 Credits.
Theory, research, and application of objective and projective techniques for behavioral, emotional, psychiatric, interpersonal, and social cognitive assessment of children and adolescents. Two lecture and two laboratory hours a week.
Requisites: Prerequisite, PSYC 808.
Grading status: Letter grade.

PSYC 815. Ethics and Practice in Clinical Psychology. 3 Credits.
Graduate standing in clinical psychology required. A survey and discussion of the ethical and legal issues that clinical psychologists confront in a variety of professional settings.
Grading status: Letter grade.

PSYC 817. Advanced Adult Practicum and Professional Ethics. 3 Credits.
Supervised clinical work in an area of particular interest to the student. Clinical activity is coordinated with reading and discussion of literature or professional ethics.
Requisites: Prerequisites, PSYC 811 and 812.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

PSYC 818. Advanced Child/Adolescent Practicum and Professional Ethics. 3 Credits.
Individualized clinical practicum for advanced doctoral students in clinical psychology. Supervised experience in psychotherapy, psychological assessment, and consultation. May be repeated for credit.
Requisites: Prerequisite, PSYC 817.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

PSYC 822. Seminar in Clinical Psychology. 1-3 Credits.
Lectures, discussions, and seminar presentations on current topics in clinical psychology.
Grading status: Letter grade.

PSYC 823. Clinical Supervision and Consultation: Theory, Research, and Practice. 3 Credits.
This course will familiarize fourth year clinical psychology doctoral students with methods and models of clinical supervision and consultation in an ethical and multicultural context. Includes a didactic seminar component and an applied supervision training component . Restricted to fourth year doctoral students in clinical psychology.
Repeat rules: May be repeated for credit. 3 total credits. 1 total completions.
Grading status: Letter grade.

PSYC 825. Advanced Clinical Practicum. 3 Credits.
Individualized clinical practicum for advanced doctoral students in clinical psychology. Supervised experience in psychotherapy, psychological assessment, and consultation.
Requisites: Prerequisite, PSYC 817.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 827. Multiculturalism and Clinical Psychology. 3 Credits.
Graduate standing in psychology and permission of the instructor. The development and format of this course is guided by current "best practice" in multicultural education in emphasizing three overriding goals: awareness and changes in attitudes and beliefs.
Grading status: Letter grade.

PSYC 828. Child/Adolescent Assessment Practicum. 1 Credit.
Graduate standing in psychology and permission of the instructor. This course provides students with an opportunity to integrate their academic foundation in clinical psychology assessment knowledge skills, ethics, and values in an applied practice setting with diverse clients.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 829. Clinical Psychological Assessment. 3 Credits.
Introduction to the principles and practices of evidence-based assessment for clinical psychology.
Grading status: Letter grade.

PSYC 830. Statistical Methods in Psychology I. 4 Credits.
Required preparation, a course in introductory statistics. Data analysis, sampling, applied probability, elementary distribution theory, principles of statistical inference.
Grading status: Letter grade.

PSYC 831. Statistical Methods in Psychology II. 4 Credits.
Statistical estimation and hypothesis testing for linear models (ANOVA, ANCOVA, regression analysis); statistical models in the design and analysis of experiments.
Requisites: Prerequisite, PSYC 830.
Grading status: Letter grade.

PSYC 833. Intra-individual Analysis. 3 Credits.
This course is designed for graduate students seeking training in quantitative methods for analyzing a range of data often encountered in psychological and neural sciences studies where numerous observations are collected across time per individual. This data enables the possibility for intra-individual variability analysis (IVA), or how to quantitatively describe individuals' dynamic process.
Requisites: Prerequisites, PSYC 830 and 831; Recommended preparation, structural equation modeling, and permission of instructor.
Grading status: Letter grade.

PSYC 838. Regression Models with Categorical Dependent Variables. 3 Credits.
The goal of the course is to provide a firm foundation in the regression analysis of binary, ordinal, nominal, or count dependent variables. In addition, the course provides helpful background to those using other methods with categorical outcomes (e.g., item response theory, structural equation models). Students should have a solid background in OLS regression analysis and some familiarity with matrix notation.
Grading status: Letter grade.

PSYC 839. Quantitative Research Methods. 3 Credits.
Quantitative Research Methods explores the many dimensions of experimental and quasi-experimental design in the psychological sciences with a specific focus on topics that commonly arise in quantitative research. Exemplar topics include true- and quasi-experimental design, causal inference, sampling, randomization, self-selection, Monte Carlo computer simulation design, internal and external validity, and ethics.
Requisites: Prerequisites, PSYC 830 and 831; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 840. Computational Statistics. 3 Credits.
Current computational environments for data analysis and visualization are taught and used as a basis for understanding current (and creating new) methods of computational statistics and dynamic statistical graphics.
Requisites: Prerequisite, PSYC 831; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 842. Test Theory and Analysis. 3 Credits.
Survey of classical test theory and more recent developments in item analysis and test construction.
Requisites: Prerequisite, PSYC 831.
Grading status: Letter grade.

PSYC 843. Factor Analysis. 3 Credits.
Advanced topics in factor analytic models, multivariate correlational models, and analysis of covariance structures as applied in behavioral research.
Requisites: Prerequisite, PSYC 831; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 844. Structural Equation Models with Latent Variables. 3 Credits.
Examination of a wide range of topics in covariance structure models, including their history, underlying theory, controversies, and practical use with major computer packages.
Requisites: Prerequisite, PSYC 831; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 845. Longitudinal Structural Equation Modeling. 3 Credits.
Latent curve modeling is a structural equations-based method for analyzing longitudinal data. Equal emphasis is placed on the statistical model and applications to real data.
Grading status: Letter grade.

PSYC 846. Multilevel Modeling. 3 Credits.
This course demonstrates how multilevel models (or hierarchical linear models) can be used to appropriately analyze clustered data (i.e. persons within groups) and/or repeated measures data in psychological research.
Requisites: Prerequisites, PSYC 830 and 831.
Grading status: Letter grade.

PSYC 847. Advanced Topics in Quantitative Psychology: Measurement. 1 Credit.
This is a one-credit hour seminar focused on contemporary topics in advanced quantitative psychology with a focus on psychometrics and measurement.
Requisites: Prerequisites, PSYC 830 and 831; Permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 3 total completions.
Grading status: Letter grade.

PSYC 848. Advanced Topics in Quantitative Psychology: Modeling. 1 Credit.
This is a one-credit hour seminar focused on contemporary topics in advanced quantitative psychology with a focus on statistical and mathematical modeling.
Requisites: Prerequisites, PSYC 830 and 831; Permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 3 total completions.
Grading status: Letter grade.

PSYC 849. Advanced Topics in Quantitative Psychology: Computation. 1 Credit.
This is a one-credit hour seminar focused on contemporary topics in advanced quantitative psychology with a focus on computational statistics.
Requisites: Prerequisites, PSYC 830 and 831; Permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit. 3 total credits. 1 total completions.
Grading status: Letter grade.

PSYC 850. Quantitative Psychology Forum. 1 Credit.
Presentations of research by faculty, students, and visitors; discussion of professional topics such as ethics, the publication process, research funding, and the reviewing of articles.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 859. Seminar in Quantitative Psychology. 1-3 Credits.
Lectures, discussions, and seminar presentations on current topics in quantitative psychology.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

PSYC 860. Directed Research Seminar in Social Psychology. 3 Credits.
Graduate status in social psychology or permission of the instructor. Directed research problems and seminar discussion of related issues.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 861. Directed Research Seminar in Social Psychology. 3 Credits.
First-year graduate status in social psychology or permission of the instructor. Directed research problems and seminar discussion of related issues.
Grading status: Letter grade.

PSYC 862. Advanced Social Psychology. 3 Credits.
Intensive study of interdependence theory and research of interpersonal relationships.
Requisites: Prerequisite, PSYC 867; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 863. Methods of Social Psychology. 3 Credits.
Methods of investigation in social psychology, with primary emphasis upon experimental design and the nature of the experimental situation.
Requisites: Prerequisite, PSYC 867; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 864. Topics in Attitude Research. 3 Credits.
A critical examination of selected topics in attitude theory and change.
Requisites: Prerequisite, PSYC 867; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 865. Methods of Applied Social Psychology. 3 Credits.
Graduate standing required. Supervised research experience in an applied setting and accompanying methods of non-laboratory research, including nonquantitative methods of social psychology and evaluation of quasi-experimental and nonexperimental designs.
Grading status: Letter grade.

PSYC 866. Interpersonal Processes and Close Relationships. 3 Credits.
Intensive study of the processes by which adult close relationships are initiated and developed.
Requisites: Prerequisite, PSYC 867; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 867. Advanced Survey of Social Psychology. 3 Credits.
Graduate standing or permission of the instructor. Survey of research and theories of attitude change, interpersonal relations, and small groups.
Grading status: Letter grade.

PSYC 868. Seminar in Social Psychology. 3 Credits.
Prerequisite, PSYC 867; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 869. Advanced Social Cognition. 3 Credits.
Advanced theory and research in social psychology that explores the cognitive processes underlying social phenomena. Specific topics include attributions, emotions, heuristics, self, goals, motives, and others.
Requisites: Prerequisite, PSYC 867; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 870. Psychology of Emotions. 3 Credits.
Graduate standing required. Seminar featuring research and theory on emotions. It stretches across traditional psychological subdisciplines because emotions are complex, multiply determined phenomena.
Grading status: Letter grade.

PSYC 871. Advanced Group Processes. 3 Credits.
Discusses both classic and contemporary theory and research related to group processes, including group performance, motivation, decision-making, social dilemmas, social justice, and other intragroup and intergroup phenomena.
Requisites: Prerequisite, PSYC 867; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 872. Seminar in Political Psychology. 3 Credits.
Graduate standing required. This course surveys research in political psychology. Topics may include personality and politics, political values and attitudes, voter behavior, candidate evaluation, and the role of emotion in political decision-making.
Grading status: Letter grade.

PSYC 873. Seminar on Prejudice and Stereotyping. 3 Credits.
Graduate standing required. Seminar reviews classic and current literature on the psychology of stereotyping and prejudice. Focus is on causes, consequences, and mental processes that maintain social biases.
Grading status: Letter grade.

PSYC 874. Social Judgment and Decision Making. 3 Credits.
Discusses both classic and contemporary theory and research related to social judgment and decision making, including basic psychological processes, heuristics and biases, models of decision making, and social influences.
Requisites: Prerequisite, PSYC 863; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 875. Advanced Seminar in Positive Psychology. 3 Credits.
Positive Psychology represents a scientific approach to understanding positive aspects of life, inclulding character strengths and human flourishing. This seminar builds students' empirical skills in this vibrant area of inquiry.
Requisites: Prerequisite, PSYC 870.
Grading status: Letter grade.

PSYC 876. Graduate Seminar in Social and Affective Neuroscience. 3 Credits.
This course will provide students with an understanding of the more basic biological (and psychological) mechanisms that contribute to social processes such as stereotypes, person perception, moral judgments, and emotions. The course will prepare students to be informed consumers of contemporary neuroscience research.
Requisites: Prerequisite, PSYC 869 or PSYC 870; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 880. Social Psychobiology. 3 Credits.
Psychological processes are increasingly being appreciated as key predictors of morbidity, mortality, and well-being. But how, exactly, do factors in the social environment "get under the skin" to influence health? This is the main question we will investigate in this course. We will accomplish this primarily through extensive reading and discussion of journal articles and presentations on a variety of biomarkers, physiological processes, and pharmacological approaches.
Grading status: Letter grade.

PSYC 888. Moral Psychology. 3 Credits.
Course explores moral judgments and behavior; examines morality and cognition, emotion, mind perception, and religion; covers debates between reason vs. intuition, utilitarianism vs. deontology, and single vs. multiple domain theories. Discusses real world applications (courtroom, torture) and related concepts (free will).
Requisites: Prerequisites, PSYC 869 or PSYC 870; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PSYC 889. Professional Development in Psychology. 3 Credits.
This course offers training and discussion in a wide array of skills rarely covered within formal academic curricula, including: how to select a career path, financial planning, media training, balancing personal/professional lives, applying for postdocs, writing research statements, getting tenure, multiculturalism, applying for grants, consulting, etc.
Grading status: Letter grade.

PSYC 890. Case Formulation and Psychotherapy Integration. 3 Credits.
Required preparation, third year or beyond in clinical psychology doctoral program.This advanced seminar provides clinical psychology graduate students with case formulation skills in the context of exposure to psychotherapy integration and contemporary evidence-based treatment models.
Grading status: Letter grade.

PSYC 991. Advanced Research. 3 Credits.
Six laboratory hours a week.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PSYC 993. Master's Research and Thesis. 3 Credits.

PSYC 994. Doctoral Research and Dissertation. 3 Credits.

GILLINGS SCHOOL OF GLOBAL PUBLIC HEALTH (GRAD)

Contact Information

Gillings School of Global Public Health
Visit Program Website (http://www.sph.unc.edu)

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Charletta Sims Evans, Associate Dean for Student Affairs

The Gillings School of Global Public Health provides exceptional teaching, conducts groundbreaking research, and delivers dedicated service to people across North Carolina, the United States, and around the world. According to *U.S. News and World Report*'s 2019 rankings, the school ranks second of all public health schools in the United States. Gillings is the top *public* school of public health in the nation. The school's mission is to improve public health, promote individual well-being, and eliminate health inequities across North Carolina and around the world.

Accredited by the Council on Education for Public Health (CEPH), Gillings offers undergraduate and graduate programs on campus near the UNC Schools of Medicine, Nursing, Dentistry, and Pharmacy, and through its state-of-the-art online education programs. The Michael Hooker Research Center and many renovated labs and classrooms (http://www.sph.unc.edu/rooms) provide an environment highly conducive to the dissemination and development of public health knowledge.

Beyond campus, faculty members from the Gillings School of Global Public Health teach, conduct research, and serve communities across the state and nation and around the world. The Research, Innovation and Global Solutions (https://sph.unc.edu/solutions/research-innovation-and-global-solutions) office works with faculty members and students to coordinate research, teaching, and practice efforts in more than 80 countries and manages innovation labs, visiting professorships, and strategic initiatives funded by a generous gift from Dennis Gillings and Joan Gillings to solve public health problems and scale up solutions. It also supports the school's robust research program and public health entrepreneurship. The North Carolina Institute for Public Health, the school's service and outreach arm, brings public health scholarship and practice communities together. The Gillings School of Global Public Health houses the following departments and curricula:

- Biostatistics (http://sph.unc.edu/bios/biostatistics)*
- Environmental Sciences and Engineering (https://sph.unc.edu/envr/environmental-sciences-and-engineering-home)*
- Epidemiology (http://sph.unc.edu/epid/epidemiology-landing)
- Health Behavior (https://sph.unc.edu/hb/health-behavior-home)
- Health Policy and Management (https://sph.unc.edu/hpm/health-policy-and-management-home)*
- Maternal and Child Health (https://sph.unc.edu/mch/maternal-and-child-health)
- Nutrition (http://sph.unc.edu/nutr/unc-nutrition)*
- Public Health Leadership Program (https://sph.unc.edu/phlp/phlp)

All departments have graduate degree programs, and four (marked with *) offer degrees for undergraduates.

Interdisciplinary programs that provide additional opportunities for students in public health-related education, service, and research include the Carolina Population Center (http://www.cpc.unc.edu), the Cecil G. Sheps Center for Health Services Research (http://www.shepscenter.unc.edu), the Center for Environmental Health and Susceptibility (http://sph.unc.edu/cehs/center-for-environmental-health-and-susceptibility), the Center for Health Promotion and Disease Prevention (http://hpdp.unc.edu), the Nutrition Obesity Research Center (http://sph.unc.edu/norc/norc-home), the Injury Prevention Research Center (http://iprc.unc.edu), Center for Urban and Regional Studies (http://curs.unc.edu), the UNC Lineberger Comprehensive Cancer Center (https://unclineberger.org), the North Carolina Institute for Public Health (http://sph.unc.edu/nciph/nciph-home), the North Carolina Occupational Safety and Health Education and Research Center (http://osherc.sph.unc.edu), the North Carolina Center for Public Health Preparedness (http://sph.unc.edu/nciph/cphp-programs), and the Nutrition Research Institute (http://www.uncnri.org) in Kannapolis.

Graduate academic degrees offered by the school are the master of science (M.S.) and the doctor of philosophy (Ph.D.). Graduate professional degrees include the master of science in public health (M.S.P.H.), master of science in environmental engineering (M.S.E.E.), master of public health (M.P.H.), master of health care administration (M.H.A.), master of science in clinical research (M.S.C.R.) and doctor of public health (Dr.P.H.). All degree requirements are administered by the faculty of the Gillings School of Global Public Health with approval from The Graduate School's Administrative Board. For complete information, please visit the Gillings Program Search (http://sph.unc.edu/gps) site on the Web.

M.P.H. Degree

The master of public health degree (https://sph.unc.edu/resource-pages/master-of-public-health-2) is designed to prepare students for positions requiring a considerable breadth of knowledge in the field of public health and a specialization in one concentration. The M.P.H. core is the centerpiece of the master of public health program at Gillings. This integrated, 2-semester, 12-credit curriculum spans our 12 concentrations. Students in the M.P.H. degree program also undergo extensive field training.

M.S.P.H. Degree

The master of science in public health is designed to prepare students for professional careers in a specialized area of public health (and/or public health policy). Students in this degree program typically take courses primarily in one major department/concentration in the Gillings School of Global Public Health. Core requirements orient students to a broader view of public health. The master of science in public health is usually a terminal degree; however, students may use this degree (more so than the master of public health) as a precursor to a doctoral program. Programs of study leading to the M.S.P.H. degree are offered by the following departments: environmental sciences and engineering, health policy and management, and maternal and child health.

M.H.A. Degree

The master of health care administration, offered by the Department of Health Policy and Management, is designed to prepare students for management careers in health care organizations. Graduates will be prepared to take positions as staff members, managers, or consultants for hospitals, health maintenance organizations, clinics, public health departments, and other health care settings. Courses focusing on health care services are supplemented with core courses offering a broader view of public health.

M.S. Degree

The master of science degree is offered in the Departments of Biostatistics, Environmental Sciences and Engineering, and Nutrition (with a focus in biochemistry only).

M.S.E.E. Degree

The curriculum leading to the M.S.E.E. is designed to prepare graduates for careers in the environmental engineering profession with special emphasis on water resources and air and industrial hygiene. Specifically, students awarded this degree are prepared for professional work with private firms of consulting engineers; with public agencies at the national, state, regional, and local levels of government; and with a variety of industrial organizations.

M.S.C.R. Degree

The master of science in clinical research is offered through the Department of Epidemiology. It is intended to complement the substantive training in medicine, dentistry, pharmacy, and other health affairs disciplines by enhancing the student's ability to apply appropriate research methodologies to his or her chosen or established field of research. Applicants will be required to demonstrate a clear relationship with a mentor in this field of research to provide content-area guidance during the program.

Dr.P.H. Degree

The doctor of public health provides professional training to prepare students effectively to conduct or supervise research, usually of an applied nature. Graduates also are prepared to integrate new knowledge and techniques into community and/or public health practice. Graduates typically are employed by operating community or public health programs at the local, state, national, or international level. A program of study leading to the Dr.P.H. degree is offered by the Department of Health Policy and Management (online learning format).

Ph.D. Degree

The doctor of philosophy prepares students for leadership in academic and related settings involving teaching and research. Students learn how to be an independent investigator by developing and applying theories for understanding public health, health care services, and policy. Graduates typically are employed by universities or other organizations conducting research. This degree is offered in the Departments of Biostatistics, Environmental Sciences and Engineering, Epidemiology, Health Behavior, Health Policy and Management, Maternal and Child Health, and Nutrition. The precursor to the Ph.D. degree is typically (although not exclusively) an M.S.P.H. degree, if the research is oriented to public health, or an M.S. degree.

Dual-Degree Programs

A number of dual-degree programs are offered in select departments. Under the dual-degree arrangement, a student may earn two professional degrees in a period of time less than the total required by the two degrees separately. Medical students may pursue a dual degree through the Departments of Epidemiology, Health Policy and Management, Maternal and Child Health, or Nutrition, or through the Public Health Leadership Program. Dentistry, business, law, city and regional planning, and information and library science students may enroll in dual-degree programs through the Department of Health Policy and Management. A dual degree also is offered through the Department of Maternal and Child Health, in conjunction with the School of Social Work, and between the Department of Health Behavior and the Department of City and Regional Planning. And recently, several dual-degree programs were created with the Eshelman School of Pharmacy (Pharm.D.) within the Departments of Maternal and Child Health, Epidemiology, Health Policy and Management, and the Public Health Leadership Program.

Online Education

The Department of Health Policy and Management provides graduate-level education to employed health professionals and health administrators through its Executive Master's Program. This national program provides master's degree study to full-time health professionals throughout the United States and beyond. This program consists of intensive summer institutes on the Chapel Hill campus, faculty-guided distance learning, and credit transferred from approved programs at other universities.

The leadership M.P.H. is offered through the Public Health Leadership Program. This degree is designed for individuals who already have a professional identity. Applicants will have three to five years' health-related experience and will desire to broaden their knowledge and skills in public health philosophy and sciences. Applicants come from a variety of professional disciplines and have a range of experiences.

The master of public health with the global public health track (Global Online or GO MPH) is intended to provide working professionals from around the world with interdisciplinary knowledge and analytical skills needed to design, implement, and evaluate policies and programs to address complex global public health issues as leaders in the field. Cohorts of students complete the online program in seven consecutive semesters. Potential students will have a bachelor's degree (e.g., in nursing, pharmacy, science, social science, engineering, or public health), or a professional degree (e.g., in medicine, dentistry, or law), and preferably three or more years of work experience.

The doctoral program in health leadership (Dr.P.H.) is available through the Department of Health Policy and Management. This program, the only one of its kind in the United States, prepares working health care professionals to become top leaders. This highly competitive, online learning program uses the latest Internet technology to connect distinguished faculty members and students in an unparalleled educational environment.

To learn more about the field of public health, visit the Web site (http://www.aspph.org/discover) developed by the Association of Schools and Programs of Public Health. The site describes public health, its effect on people's lives locally and globally, and the variety of public health careers.

PUBLIC HEALTH LEADERSHIP PROGRAM (GRAD)

Contact Information

Public Health Leadership Program
Visit Program Website (http://www.sph.unc.edu/phlp)

Anna P. Schenck, Director

The Public Health Leadership Program is an academic unit in the Gillings School of Global Public Health.

The Public Health Leadership Program (PHLP) is home to Master's of Public Health (M.P.H.) concentrations in two areas: Leadership in Practice and Population Health for Clinicians. Additionally, PHLP faculty are engaged in leadership and teaching in the global health concentration. Both M.P.H. concentrations offered within PHLP consists of a 42-credit-hour interdisciplinary and practice-based curriculum addressing the core functions and competencies of public health.

The Leadership in Practice concentration is designed to support professionals at all areas of public health practice, at every level of their leadership journey whether they are entry-level public health practitioners, public health executives, or in between. This concentration provides students with the knowledge and skills necessary to lead teams, projects, organizations, and systems to eliminate inequities, improve conditions, and foster change in local and global communities. Through this concentration, students will be prepared to empower populations to live their best lives — no matter their location. The Leadership in Practice concentration is available in residential or online format, as a full-time or part-time course of study.

The Population Health for Clinicians concentration is designed for medical students, practicing physicians, and other clinicians who wish to increase their knowledge in public health and population science to better serve their communities. This concentration offers a unique interdisciplinary focus on clinical, prevention, population, and policy sciences which enable students to improve clinical environment when they complete the program. This concentration is available only in a full-time, residential format.

PHLP also offers four graduate-level academic certificate programs: the certificate in core concepts of public health, the field epidemiology certificate, the global health certificate, and the public health leadership certificate. These certificate programs are offered only in an online format.

Professors of the Practice

Anna P. Schenck, *Director Public Health Leadership Program*; Health Outcomes, Public Health Quality and Quality of Care, Cancer Prevention and Treatment, Research Methods for Public Health Practice, Aging, Associate Dean for Public Health Practice, Online Education
Vaughn Upshaw, *Concentration Lead (Leadership in Practice)*; Public Health Leadership, Online Education

Professors

William A. Sollecito, *Certificate Administrator Public Health Leadership Online Certificate Programs*; Leadership, Global Health, Continuous Quality Improvement, Project Management, Clinical Research, Online Education
Rohit Ramaswamy, Continuous Quality Improvement, Implementation Science, Online Education
Sue Tolleson-Rinehart, Population Health for Clinician, Health Policy

Associate Professors

Kauline Cipriani, Public Health Leadership, Diversity and Inclusion
Lori Carter-Edwards, Public Health Leadership, Online Education

Assistant Professors

Karine Dubé, Public Health Leadership, Online Education
Lori A. Evarts, *Director Graduate Studies*; Project Management, Team Effectiveness, Clinical Research, Leadership, Online Education
Cythnia Feltner, *Concentration Lead (Population Health for Clinicians)*; Medicine
Travis Johnson, Public Health Leadership, Rural Health, Online Education
Aimee McHale, Public Health Leadership, Online Education
Dana Rice, Public Health Leadership, Online Education
Julea Steiner, *Director Professional Development*; Public Health Practice, Health Communications, Continuous Quality Improvement, Online Education

Adjunct Professors

Kathy Bradford, Population Health for Clinicians
Timothy Gabel, Population Health for Clinicians
Amy Lanou, Public Health Leadership
J Lloyd Michener, Population Health for Clinicians
Medge Owen, Public Health Leadership
Greg Randolph, Population Health for Clinicians, Quality Improvement
Kevin Sowers, Population Health for Clinicians
Paula Stafford, Public Health Leadership
Hugh Tilson, Public Health Practice, Leadership, Epidemiology
Anthony Viera, Population Health for Clinicians
Adam Zolotor, Population Health for Clinicians
Sanjay Zodpey, Public Health Leadership

Adjunct Associate Professors

Ameena Batada, Public Health Leadership, Rural Health
Martha Carlough, Population Health for Clinicians
Anthony Charles, Population Health for Clinicians
Daniel Jonas, Health Services Research, Comparative Effectiveness
Anant Kumar, Global Online
Nancy McGee, Public Health Leadership
Sandy Moulton, Leadership, Practicum Placements
Jacqueline Olich, Practicum Placements, Leadership, Global Online
Deborah Porterfield, Population Health for Clinicians
Richard Scoville, Population Health for Clinicians

Adjunct Assistant Professors

Kathryn Andolsek, Population Health for Clinicians
Gary Asher, Public Health Leadership
James Bowles, Public Health Practice
Marcella H. Boynton, Population Health for Clinicians
Kay Campbell, Occupational Health Nursing
Russell Coletti, Population Health for Clinicians
Pat Curran, Public Health Leadership
Diane Davis, Public Health Leadership
Pamela Dickens, Public Health Leadership
Donna Dinkin, Public Health Leadership
Marie Lina Excellent, Public Health Leadership

William Fleming, Public Health Leadership
Jill Fromewick, Public Health Leadership, Rural Health
Diego Garza Rodriguez, Public Health Leadership
Gary Greenberg, Public Health Nursing
Erica Gregory, Population Health for Clinicians
Jennifer Griffin, Epidemiology, Global Health, Online Education
Carol Gunther-Mohr, Public Health Leadership
Lisa Macon Harrison, Public Health Leadership
Sheila Higgins, Public Health Nursing
Judith Holder-Cooper, Public Health Nursing
Pooja Jani, Public Health Leadership, Online Education
Katherine Kirkland, Public Health Nursing
Manish Kumar, Public Health Leadership, Professional Development
Elizabeth Lawhorn, Public Health Nursing
Spencer Lindgren, Public Health Leadership
Brettania Lopes, Public Health Leadership
Rebecca Maine, Public Health Leadership
Karen Mastroianni, Public Health Nursing
Paul Meade, Public Health Leadership
Charles Mike Newton-Ward, Public Health Marketing, Online Education
Judy Ostendorf, Public Health Nursing
Sean Philpott-Jones, Global Health
Trista Reid, Public Health Leadership
Mamie Sackey Harris, Public Health Leadership, Global Health
Ghazaleh Samandari, Public Health Leadership, Global Online
Michael Steiner, Population Health for Clinicians
Amy Belflower Thomas, Public Health Leadership
Gretchen Van Vliet, Public Health Leadership, Global Health
Rachel Wilfert, Public Health Leadership
Jill Winkler, Population Health for Clinicians
Louise Winstanly, Public Health Leadership, Ethics, Global Health
Jacqueline Wynn, Public Health Leadership
Susan Zelt, Public Health Leadership, Practicum Placement, Research Design and Management
Scott Zimmerman, Public Health Leadership

Adjunct Instructors

Ruth Barlow, Occupational Health Nursing
Christine Bevc, Public Health Leadership
Emily Kiser, Public Health Leadership
Melissa McDiarmid, Population Health for Clinicians
Sarah Brill Thach, Public Health Leadership, Rural Health

Lecturer

Kim Faurot, Population Health for Clinicians

Professors Emeriti

Russ Harris, Population Health for Clinicians
Arnold D. Kaluzny, Public Health Leadership

The Public Health Leadership Program uses the PUBH abbreviation for course listings. PUBH courses are open to any student unless the individual course indicates permission of instructor is required. Visit the Web site (http://www.sph.unc.edu/phlp) for additional information.

Advanced Undergraduate and Graduate-level Courses

PUBH 420. The HIV/AIDS Course. 1 Credit.
This course offers participants a multidisciplinary perspective on HIV/AIDS -- its etiology, immunology, epidemiology, and impact on individuals and society. How HIV/AIDS is framed by a society determines not only how affected persons are treated but also the degree to which the rights of the individual are upheld.
Grading status: Pass/Fail.

PUBH 423. AIDS Service. 3 Credits.
This course will integrate community service into the campus-wide AIDS course. Students will work as volunteer interns three to five hours per week for 10 weeks during the semester with Triangle-area community service organizations.
Gen Ed: EE- Service Learning.
Grading status: Letter grade.

PUBH 500. Global Health Discussion Series. 0.5 Credits.
Provides opportunities for students to get to know each other through an exchange and discussion. Students exchange points of view with globally experienced faculty at UNC-Chapel Hill.
Grading status: Letter grade.

PUBH 510. Interdisciplinary Perspectives in Global Health. 3 Credits.
Explores issues, problems, and controversies in global health through an interdisciplinary perspective; examines the complex tapestry of social, economic, political, and environmental factors that affect global health; analyzes global health disparities through a social justice and human rights lens; and exposes students to opportunities in global health work and research.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PUBH 610. Introductory Spanish for Health Professionals. 3 Credits.
This course is intended for students who know no Spanish or so little that they feel the need to start over. Students with more than two semesters of college Spanish are not eligible. The course covers the curriculum of first-semester Spanish taught within a health context, with a focus on speaking.
Grading status: Letter grade.

PUBH 613. Intermediate Spanish for Health Care I. 3 Credits.
This intermediate course is the equivalent of the third semester of college Spanish. Students will hone their listening and speaking skills in class primarily through role-playing activities and class discussion. Activities center on an original film set in a health clinic in rural North Carolina.
Grading status: Letter grade
Same as: AHSC 613I, NURS 613I, SOWO 613I.

PUBH 614I. Intermediate Spanish for Health Care II. 3 Credits.
Permission of the instructor. This primarily e-learning course provides public health students with the opportunity to improve their oral communication skills in Spanish at the intermediate level via DVD, Web, and workbook. Instructor-led. Online course.
Requisites: Prerequisite, PUBH 613I.
Grading status: Pass/Fail
Same as: AHSC 614I, NURS 614I, SOWO 614I.

PUBH 615. Advanced Spanish for Health Care I. 3 Credits.
Required preparation, third semester Spanish or equivalent. This advanced course reviews the grammar of the third and fourth semester of college Spanish. Students hone their listening and speaking skills through role-playing activities and class discussion. Activities center on an original film set in a Latino-run health clinic.
Grading status: Letter grade
Same as: AHSC 615I, NURS 615I, SOWO 615I.

PUBH 616I. Health Care Informatics. 2 Credits.
Course designed to provide a multimodal learning experience that prepares health sciences students to learn to become proficient at selecting/using technology for organizing, analyzing, and managing information in health care settings.
Grading status: Letter grade.

PUBH 680. Public Health Practice. 3 Credits.
A comprehensive introduction to public health concepts and practice through an examination of the philosophy, purpose, history, organization, functions, tools, activities, and results of public health practice at the national, state, and community levels. Online course.
Grading status: Letter grade.

PUBH 690. Special Topics in Public Health Leadership. 1-3 Credits.
Permission of the instructor. Sections will focus on specific topics of current interest to health workers. Fliers describing the section offering will be distributed prior to registration each semester. Lecture hours per week dependent upon credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

PUBH 696. Independent Study. 1-3 Credits.
Independent Study to address goals and objects of student. Prior faculty agreement is required. Registration for an independent study course must be completed after the learning contract has been approved and no later than the last day of "late registration" (the end of the first week of classes in F/S).
Grading status: Letter grade.

Graduate-level Courses

PUBH 700. MHCH Planning and Evaluation. 3 Credits.
Permission of the instructor for nonmajors. Limited to residential students in public health. This course will familiarize students with basic concepts and methodologies required for effective public health program planning and evaluation in a variety of settings, both domestic and global. The majority of this course is taught online.
Grading status: Letter grade
Same as: MHCH 700.

PUBH 701. Cost-Effectiveness in Health and Medicine. 2 Credits.
Overview of economic evaluations of public health and health care interventions, understanding basic methods of cost-effectiveness analyses (CEA) and use of CEA to inform resource allocation decisions. Critically appraise CEA for internal validity and applicability. Explore controversial CEA issues, including methodological controversies and ethical issues for the prioritization of resources.
Grading status: Letter grade.

PUBH 702. Systematic Review. 1 Credit.
Course gives students background in assessing and conducting systematic reviews. Focuses on 1) reading, discussing, and critiquing systematic reviews on various topics; 2) reading background and methods articles on systematic reviews; 3) developing a focused question for systematic review; and 4) working on the systematic review over the semester.
Grading status: Letter grade.

PUBH 703. Quality Improvement in Health Care and Public Health. 3 Credits.
This course provides students from public health and associated health professions with an understanding of the major quality improvement methodologies and tools, real-world application in healthcare and population health settings, and practice using the tools and techniques to solve local health delivery problems.
Grading status: Letter grade.

PUBH 704. Foundations of Global Health. 2-3 Credits.
Students will gain a broader understanding of population-based global health issues. Critically examines global health topics with learning from on-line modules and learning assignments and interactive seminars with student presentations.
Grading status: Letter grade.

PUBH 705. One Health: Philosophy to Practical Integration. 1-3 Credits.
This course explores the intersection of human, animal, and environmental health and facilitates the understanding of health as an inexorably linked system requiring multidisciplinary collaborative efforts. The One Health concept demonstrates the importance of a holistic approach to disease prevention and the maintenance of human, animal, and environmental health.
Grading status: Letter grade
Same as: ENVR 705.

PUBH 706. Advanced Health Policy for Clinicians. 3 Credits.
An introduction to the fundamental organization, behavior, financing, and challenges of the health system of the United States. The course treats the entire edifice of American health care as "the American health system," and intends to examine it in toto, including by comparing it to other national health systems, and in part, by examining critical components of the system. Students must be enrolled in the Population Health for Clinicians Concentration or permission of the instructor.
Grading status: Letter grade.

PUBH 710. Introduction to Global Health Ethics. 1 Credit.
This course is designed to give students the skills to identify and effectively address ethical issues that arise in global health research and practice.
Grading status: Letter grade.

PUBH 711. Critical Issues in Global Health. 3 Credits.
Explores contemporary issues/controversies in global health through an interdisciplinary perspective; examines complexity of social, economic, political, and environmental factors affecting global health; analyzes global health disparities through a social justice lens; and exposes students to opportunities in global health work and research.
Grading status: Letter grade.

PUBH 712. Global Health Ethics. 3 Credits.
This course will introduce students to the theoretical and practical aspects of public health ethics. Develop student's analytical skills to evaluate ethical issues related to public health policy, prevention, treatment, and research. Topics include: ethical reasoning; concepts of justice; principles of interacting with communities; professional conduct and research. Online course.
Grading status: Letter grade.

PUBH 713. Infectious Disease Epidemiology. 3 Credits.
This course presents an overview of basic principles of infectious diseases that affect public health in the United States and worldwide. Topics include biology of infectious agents, factors affecting emergence/re-emergence, mechanisms of pathogenesis, immunology of infection, epidemiology, and strategies for diagnosis, prevention, and control.
Grading status: Letter grade.

PUBH 714. Introduction to Monitoring and Evaluation of Global Health Programs. 3 Credits.
Fundamental concepts/tools for monitoring/evaluating public health programs including HIV/AIDS/STDs, maternal/child health, environment, and nutrition. Concepts and practices in M&E will be covered: logic models, theory of change, indicators, data collection methods, process evaluation, research design, and mixed methods. Small group work to create M&E plan for global health case-study. Online.
Grading status: Letter grade.

PUBH 715. Communication for Health-Related Decision Making. 2 Credits.
Course provides foundation and skills to understand and improve decision making that affects people's health. It teaches theoretical basis and evidence-based applications of health-related decision making.
Grading status: Letter grade
Same as: HBEH 715.

PUBH 716. Applied Quality Improvement Methods for Healthcare and Public Health. 3 Credits.
The course objective is to develop, implement, and test a solution to improve health care or public health delivery, using a model called the Model for Improvement (or MFI). The model uses three questions to scope the improvement project and four steps, Plan-Do-Check-Act, to implement and test solutions.
Grading status: Letter grade
Same as: MHCH 816, HPM 716.

PUBH 717. Gillings Global Implementation Lab. 2 Credits.
Interdisciplinary, field-based graduate course for teams of students to apply knowledge and experience to design/implement systematic solutions to improve the delivery of public health services in partnership with organizations around the world. Students develop general insights, learn effective implementation practices, and acquire evidence-based applied experience.
Requisites: Corequisite, PUBH 716.
Grading status: Letter grade
Same as: MHCH 817, HPM 717.

PUBH 718. Designing Public Health Systems. 3 Credits.
Using powerful tools from engineering and management, this course equips students to conceptualize, design, and analyze public health and healthcare delivery systems for successful implementation.
Grading status: Letter grade.

PUBH 719. Introduction to Implementation Research and Practice in Public Health. 3 Credits.
This course introduces the concepts, frameworks, and methods of implementation research and practice. By the end of this course, students will be able to explain the rationale for this field, identify guiding frameworks, assess multilevel barriers and facilitators, and address barriers and facilitators with implementation strategies tailored to specific contexts
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 99 total completions.
Grading status: Letter grade
Same as: HPM 719.

PUBH 720. The HIV/AIDS Course. 1 Credit.
This course offers participants a multidisciplinary perspective on HIV/AIDS -- its etiology, immunology, epidemiology, and impact on individuals and society. How HIV/AIDS is framed by a society determines not only how affected persons are treated but also the degree to which the rights of the individual are upheld.
Grading status: Letter grade.

PUBH 725. The HIV/AIDS Course Online. 1 Credit.
This online course offers a multidisciplinary perspective on HIV/AIDS -- its etiology, immunology, epidemiology, and impact on individuals and society. How HIV/AIDS is framed by a society determines not only how affected persons are treated but also the degree to which the rights of the individual are upheld.
Grading status: Letter grade.

PUBH 726. Western North Carolina Place-Based Approach to Public Health. 1 Credit.
Introduces concepts, issues, and examples related to public health in Western NC. We will explore "place", i.e. the histories, contexts, peoples, landscapes, and other aspects of what contributes to the current wellbeing of communities for developing and building on existing approaches to improving the public's health. Integrates critical reading and media with visits to and experiences with people/health institutions in Western NC, to better understand and plan relevant public health interventions. Asheville Cohort students only.
Grading status: Letter grade.

PUBH 727. Community Health Transformation. 3 Credits.
Community is a key aspect of place-based public health. Key components are Community Based and Participatory Research and Action (CBPRA) and Communities of Solution (COS), and the ways that these approaches may improve community health in WNC communities. Community engagement and CBPRA principles will be applied to the health promotion program planning process, from situation analysis/needs assessment to program evaluation, including Results-Based Accountability (RBA). Intended for students who have completed the MPH core. Requires completion of the MPH Core courses; Course is held in Asheville NC and includes a community project.
Grading status: Letter grade.

PUBH 730. Leading Quality Improvement in Public Health. 3 Credits.
Overview of quality improvement (QI) and its important relationship to leadership. Focus on practical skills with sufficient theory to understand the origins of the philosophy and processes encompassed by QI. For working practitioners with current or future management/leadership responsibilities within their organizations.
Grading status: Letter grade.

PUBH 731. Social Marketing. 3 Credits.
Course will orient students to market-based strategies, models, and tactics for improving individual and community health status within the framework of marketing, strategic communication, and advocacy. Online course.
Grading status: Letter grade.

PUBH 732. Cultural Competencies of Health Organizations. 3 Credits.
Course will provide health care professionals with a framework for the implementation of National Standards for Culturally and Linguistically Appropriate Services in Health Care (CLAS). Online course.
Grading status: Letter grade.

PUBH 735. Policy Development. 3 Credits.
SPH students or permission of the instructor. Focus is on institutional policy development, regulation and enforcement, and field observation. Online course.
Grading status: Letter grade.

PUBH 741. Quantitative Methods for Health Care Professionals I. 4 Credits.
Course is designed to meet the needs of health care professionals to appraise the design and analysis of medical and health care studies and who intend to pursue academic research careers. Covers basics of statistical inference, analysis of variance, multiple regression, categorical data analysis. Permission of instructor.
Grading status: Letter grade.

PUBH 742. Quantitative Methods for Health Care Professionals II. 4 Credits.
Continuation of PUBH 741. Main emphasis is on logistic regression; other topics include exploratory data analysis and survival analysis.
Requisites: Prerequisite, PUBH 741; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PUBH 745. Community Improvement and Assessment. 3 Credits.
Development of knowledge/skills to aid communities in improving health outcomes: (a) analysis of community data; (b) establishment of collaborative efforts to prioritize health issues for action and identify evidence-based strategies to improve community health. Local public health system interaction in real-time case study involving collection/analysis of community data. Online.
Grading status: Letter grade
Same as: PHNU 745.

PUBH 746. Public Health Program Planning and Evaluation. 3 Credits.
SPH majors or permission of the instructor. Fundamentals of public health program planning and monitoring, with emphasis on applications in community settings and proposal development for program funding.
Grading status: Letter grade
Same as: PHNU 746.

PUBH 747. Project Management Principles and Practices. 3 Credits.
Graduate students only. Provides an overview of knowledge and skills required for effective project/team leadership and management. Includes modules on leadership, management techniques, application of continuous quality improvement, and organizational designs that complement team-based organizations. Online course.
Grading status: Letter grade.

PUBH 748. Leadership in Health Policy for Social Justice. 3 Credits.
This course will provide students with the knowledge and skills to develop policies that address public health challenges, with an emphasis on improving health equity, promoting social justice, and creating systems in which the human right to health is given full effect.
Grading status: Letter grade.

PUBH 749. MPH Year & Career. 1 Credit.
Designed for students in the Population Health for Clinicians concentration in the MPH program who are actively working on their practicum/master's paper. Ten required evening sessions are scheduled in the fall and ten required evening sessions are scheduled in the spring.
Repeat rules: May be repeated for credit. 2 total credits. 2 total completions.
Grading status: Letter grade.

PUBH 750. Strategies of Prevention for Clinicians. 3 Credits.
Designed for those interested in the clinical arena. Establishes a framework for examining prevention activities for clinicians, and then considers a number of important health problems and the evidence for applying prevention strategies to these health problems. Encourages active student participation and involves a multidisciplinary faculty. Students must be enrolled in the Population Health for Clinicians Concentration or have permission of the instructor to enroll.
Grading status: Letter grade.

PUBH 751. Critical Appraisal of Health Literature I. 2 Credits.
Emphasizes the process of critical appraisal of existing medical research literature, with examples from a variety of subject areas. Students must be enrolled in the Population Health for Clinicians Concentration or have permission of the instructor to enroll.
Grading status: Letter grade.

PUBH 752. Critical Appraisal of Health Literature II. 1 Credit.
Emphasizes the process of critical appraisal of existing medical research literature, with examples from a variety of subject areas. Student presentations of structured critical appraisals constitute about 50 percent of sessions. Students must be enrolled in the Population Health for Clinicians Concentration or have permission of the instructor to enroll.
Grading status: Letter grade.

PUBH 754. Research Frameworks and Methods for Assessing and Improving Population Health. 3 Credits.
This course is designed to provide students with the fundamental research and analytic methods needed by public health leaders to assess the effectiveness, efficiency, and equity of healthcare in order to improve population health. The focus will be on research skills needed by practitioners with the objective of improving health outcomes.
Grading status: Letter grade.

PUBH 755. Translating Evidence into Practice for Population Health. 2 Credits.
The course provides an engaging, intellectual environment for students to discuss conceptual frameworks, study designs, and population outcome measures for closing the gap between evidence and daily practice across important population subgroups and in diverse clinical settings. Students complete a series of assignments, including a final paper and presentation.
Grading status: Letter grade.

PUBH 756. Addressing Health Inequalities in the United States. 3 Credits.
Disparities in morbidity/mortality in sub-populations continue compared to other United States populations. Course explores contributors to inequalities and identifies strategies to counterbalance contributors to correct inequalities using public health resources.
Grading status: Letter grade
Same as: MHCH 756.

PUBH 760. Clinical Measurement and Evaluation. 3 Credits.
Focuses on work, workplace exposures and hazards, and their effect on health. Interdisciplinary approaches to risk identification, reduction, and communication will be emphasized within regulatory and ethical contexts.
Grading status: Letter grade
Same as: EPID 711.

PUBH 763. The Politics of Health Reform, Quality, Outcomes, and Effectiveness. 3 Credits.
Systematic analysis of recent reforms to the U.S. health care system, including passage and initial implementation of the Affordable Care Act, with particular attention to how reform is intended to improve access, quality, equity, and effectiveness and whether reform can accomplish this while controlling cost.
Grading status: Letter grade.

PUBH 764. Interdisciplinary Seminar in Refugee Health and Wellness. 1-3 Credits.
Academic year-long seminar for health profession students to engage in inter-professional teams, providing health care access and mental health assessment, case management, and health promotion to refugees resettled in the Triangle. Graduate course open to undergraduates. MUST enroll in both fall and spring semesters.
Repeat rules: May be repeated for credit. 3 total credits. 3 total completions.
Grading status: Letter grade.

PUBH 767. Team Leadership in Research Navigation. 3 Credits.
Team leadership and management practices with an emphasis on successful team leadership in clinical research. Team effectiveness strategies provide framework for development of successful leadership of teams undertaking clinical research.
Grading status: Letter grade.

PUBH 771. Communicating Public Health through Writing. 2 Credits.
Students will develop writing skills needed for public health practice. Five writing projects are covered: literature reviews and syntheses, policy analyses and summaries, program planning papers, research and evaluation papers, and funding proposals.
Grading status: Letter grade.

PUBH 781. Community Engagement and Leadership in Health. 3 Credits.
Students will gain a basic understanding of how to be leaders in applying principles of community engagement in public health programs and organizational settings by engaging different stakeholder sectors, promoting multi-level cohesion among different audiences, communicating strategies, and collaboratively designing community engagement and implementation plans.
Grading status: Letter grade.

PUBH 782. The Public Health Impact of Criminalizing the Marginalized. 2 Credits.
permission from instructor for students lacking the prerequisite. This course will define criminalization and describe how this phenomenon disproportionately impacts the health of marginalized populations. Students will analyze the social construction of illicit behavior and subsequent criminal involvement and use the principles of life course theory and social ecological framework to explore associations between what is criminalized and health outcomes. The course will also describe the impact of criminalization on emerging health policy and introduce public health tools needed to address these challenges.
Requisites: Pre- or corequisite, SPHG 711, SPHG 712, and SPHG 713;
Grading status: Letter grade.

PUBH 783. Mass Incarceration & Public Health. 2 Credits.
This course examines the public health implications of mass incarceration in the US. Using a public health prevention framework, students will investigate the intersection of the criminal justice system with health outcomes. Students will identify alternative strategies grounded in public health, social justice and human rights principles to create healthier communities.
Requisites: Prerequisite, SPHG 711, 712, 713 preferred but not required; contact instructor for permission if SPHG 711, 712, 713 have not been undertaken.
Grading status: Letter grade.

PUBH 784. Project Management Strategy and Application. 3 Credits.
This course presents classic project management concepts and methods, applicable to research, public health, healthcare, information science and other team projects, with an aim to develop a toolbox of strategies to effectively manage projects using globally accepted theoretical frameworks; practice is gained via assignments, cases, lectures, and course project.
Grading status: Letter grade.

PUBH 785. Interdisciplinary Approaches to Occupational Health. 3 Credits.
Focuses on work, workplace exposures and hazards, and their effect on health. Interdisciplinary approaches to risk identification, reduction, and communication will be emphasized within regulatory and ethical contexts.
Grading status: Letter grade
Same as: PHNU 785.

PUBH 786. Occupational Safety and Ergonomics. 3 Credits.
Fundamentals of occupational safety and ergonomics with emphasis on legislation and organization of industrial safety and ergonomic programs, including hazard recognition, analysis, control, and motivational factors pertaining to industrial accident and cumulative trauma disorder prevention.
Grading status: Letter grade
Same as: PHNU 786.

PUBH 790. The Leadership Assessment Workshop. 2 Credits.
Intensive retreat program that introduces students to leadership theory as applied to MCH-Public Health issues. Course will focus on understanding self and others, building organizational culture, and applying leadership theory to MCH issues, among other issues.
Grading status: Letter grade
Same as: MHCH 790.

PUBH 791. Core Principles in Public Health Leadership. 3 Credits.
Course will introduce students to leadership theories and research, provide a context for leadership in public health, and help students learn core leadership skills.
Grading status: Letter grade.

PUBH 793. Global Public Health Leadership. 3 Credits.
This course will make broad use of current events with a leadership relevance across the world, emerging global challenges, both strategic and ethical, and will make extensive use of global issues the students face, presented using the case study method. Online course.
Grading status: Letter grade.

PUBH 804. Issues in Public Health Leadership. 1 Credit.
This course will provide a case-based approach to the approaches different public health leaders have used to deal with a variety of public health issues. The course will focus on identifying the public health competencies used in real-world situations and how students can apply those competencies to their own work in public health.
Grading status: Letter grade.

PUBH 805. Public Health in the Global Context: Service Learning with Vulnerable U.S. Populations. 1 Credit.
A spring break interdisciplinary service-learning trip to rural Tyrrell County, NC to learn about the social determinants of health and to promote health and reduce risks. Health professional students from nursing, physical therapy, public health, and social work form interdisciplinary teams to provide population-centered services to residents of this county.
Grading status: Letter grade.

PUBH 806. Data Skills Online. 1 Credit.
This course focuses on training public health professions to apply basic analytic skills; students select a work-related public health topic of interest. The nine course modules engage students in active learning through the use of case studies, basic data descriptions, on-line discussions, quizzes, and a final project.
Grading status: Letter grade.

PUBH 810. Population Health: Interprofessional Management in a Changing Healthcare System. 3 Credits.
Admission to SPH graduate program required for course enrollment. Course experience will involve medicine, nursing, pharmacy, and social work students engaging together to learn skills and knowledge to apply population health principles. Key themes include inter-professional collaboration and teamwork, identification and stratification of populations-at-risk, and discussion of evidence-based care planning/coordination.
Grading status: Letter grade.

PUBH 811. Population Health in Health Care: Field Experience. 3 Credits.
This inter-professional field-based course offers opportunities to engage with students from medicine, nursing, pharmacy, and social work to learn skills and knowledge to apply population health principles in a primary healthcare setting. Students will work on team-based projects in primary care settings.
Requisites: Prerequisite, PUBH 810; permission of instructor for students lacking the prerequisite.
Grading status: Letter grade.

PUBH 886. Field Practicum in Public Health. 1-6 Credits.
The practicum or field experience is intended to provide the student an opportunity to integrate course work in a new or different type of health-related setting. This experience will be completed after most regular course work. The practicum cannot be only an observational experience.
Grading status: Letter grade.

PUBH 890. Special Topics in Public Health Leadership. 1-3 Credits.

PUBH 992. Master's (Non-Thesis). 3 Credits.
Permission of the instructor. A major paper on a problem relevant to public health practice. This study may extend over more than one semester. Credit is assigned accordingly.
Repeat rules: May be repeated for credit.

Master of Public Health (M.P.H.) Leadership in Practice Concentration Description

Designed to teach professionals how to apply leadership principles in a public health context, the Leadership in Practice concentration (https://sph.unc.edu/resource-pages/master-of-public-health-2/leadership-in-practice-concentration) offers the knowledge and skills needed to lead teams, projects, organizations and systems in eliminating inequities and improving conditions in local and global communities. As a graduate with expertise in design thinking, evidence-based decision-making and mobilization for large-scale change, you'll help empower populations to live their best lives — no matter their location.

Requirements

Requirements for the **M.P.H.** degree in the **Leadership in Practice** concentration

Code	Title	Hours
M.P.H. Integrated Core		
SPHG 711	Data Analysis for Public Health Fall 1	2
SPHG 712	Methods and Measures for Public Health Practice Fall 1	2
SPHG 713	Understanding Public Health Issues Fall 1	2
SPHG 721	Conceptualizing Public Health Solutions Spring 1	2
SPHG 722	Developing, Implementing, and Evaluating Public Health Solutions Spring 1	4
M.P.H. Concentration		
PUBH 791	Core Principles in Public Health Leadership Fall 1	3
PUBH 718	Designing Public Health Systems Spring 1	3
PUBH 748	Leadership in Health Policy for Social Justice Fall 2	3
PUBH 745	Community Improvement and Assessment Fall 2	3
PUBH 730	Leading Quality Improvement in Public Health Spring 2	3
M.P.H. Practicum		
SPHG 701	MPH Practicum Preparation Spring 1	2
Practicum: 200 minimum hours Summer 1		
SPHG 702	MPH Practicum Reflection Fall 2	1
M.P.H. Electives		
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
M.P.H. Culminating Experience		
PUBH 992	Master's (Non-Thesis) Spring 2	3
Total Hours		42

Competencies

Students will develop the following **Leadership in Practice competencies**, building on the foundational public health knowledge they attain in the Gillings M.P.H. Integrated Core courses.

LIP01.	Prioritize public health values and ethics in a philosophy of leadership relevant to adaptive public health challenges.
LIP02.	Demonstrate effective communication skills to promote a compelling public health agenda.
LIP03.	Facilitate inclusive engagement and collaborative decision-making across professions and with diverse stakeholders to lead in public health practice.
LIP04.	Design transformational systems and innovative approaches to ensure effective public health practice.
LIP05.	Integrate research and practice-based evidence to continuously improve the quality of public health practice.
LIP06.	Develop structures of accountability to promote good governance and stewardship of resources to improve population health.

Master of Public Health (M.P.H.) Population Health for Clinicians Concentration Description

Critical health challenges facing communities around the world cannot be solved in clinical settings alone. The Population Health for Clinicians concentration (https://sph.unc.edu/resource-pages/master-of-public-health-2/population-health-for-clinicians-concentration) empowers graduates to provide excellent care to individuals and also improve systems of care for the benefit of all. Building on a decades-long collaboration between the UNC Schools of Medicine and Public Health, this program is widely regarded as one of the best opportunities for clinicians to gain mastery in public health and population science.

Requirements

Requirements for the **M.P.H.** degree in the **Population Health for Clinicians** concentration

Code	Title	Hours
M.P.H. Integrated Core		
PUBH 741	Quantitative Methods for Health Care Professionals I Fall 1, *	4
PUBH 760	Clinical Measurement and Evaluation Fall 1, **	3
SPHG 713	Understanding Public Health Issues Fall 1	2
SPHG 721	Conceptualizing Public Health Solutions Spring 1	2
SPHG 722	Developing, Implementing, and Evaluating Public Health Solutions Spring 1	4
M.P.H. Concentration		
PUBH 750	Strategies of Prevention for Clinicians Fall 1	3
PUBH 706	Advanced Health Policy for Clinicians Fall 1	3
PUBH 751	Critical Appraisal of Health Literature I Fall 1	2
PUBH 752	Critical Appraisal of Health Literature II Spring 1	1
Graduate-level "Selective" course for clinicians/practitioners Fall 1/ Spring 1		3
M.P.H. Practicum		
SPHG 701	MPH Practicum Preparation Spring 1	2
Practicum: 200 minimum hours Summer 1		
SPHG 701	MPH Practicum Preparation Fall 2	2
M.P.H. Electives		
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
Elective (Graduate-level courses)		3
M.P.H. Culminating Experience		
PUBH 992	Master's (Non-Thesis) Final Term	3
Total Hours		43

* Approved substitute for SPHG 711 for students in this concentration.

** Approved substitute for SPHG 712 for students in this concentration.

Competencies

Students will develop the following **Population Health for Clinicians competencies**, building on the foundational public health knowledge they attain in the Gillings M.P.H. Integrated Core courses.

PHC01.	Demonstrate the ability to think critically and analytically about the priority prevention needs of populations and appropriate prevention strategies, considering evidence about benefits, harms, and costs.
PHC02.	Adopt a systematic approach to critical appraisal of health literature to inform the appropriate use of evidence.
PHC03.	Demonstrate a clear understanding of, and ability to contribute to the creation and use of innovative system strategies that enable constructive dialogue and collaboration across all health stakeholders and build public health and medical systems that deliver quality, effectiveness, safety, and equity.
PHC04.	Apply appropriate data collection methods to measure the burden of disease in a population, and to assess potential benefits and harms of various strategies to improve health and advance health equity.
PHC05.	Synthesize evidence and disseminate findings that enhance the rapid translation of knowledge into policy and practice to promote population health priorities in clinical and community contexts.

Admissions

Please visit Applying to the Gillings School (https://sph.unc.edu/students/how-to-apply) first for details and information. Application to the residential M.P.H. is a two-step process. Please apply separately to (1) SOPHAS and (2) UNC–Chapel Hill (via the Graduate School application). Visit https://gradschool.sites.unc.edu/master-of-public-health/ for more details. If you are interested in the online M.P.H., please visit the M.P.H.@UNC (https://onlinemph.unc.edu) Web site and fill out an inquiry form.

Practicum

This 200 (minimum) hour planned, mentored, and evaluated work experience (paid or unpaid) gives students the real-world opportunity to integrate and apply knowledge, skills, and values from Year One of their Gillings M.P.H. training in a professional public health setting such as a nonprofit organization, hospital, local or state health department, or for-profit firm (public or private sectors). Please visit the M.P.H. Practicum Web site (https://sph.unc.edu/resource-pages/master-of-public-health-2/mph-practicum) for additional information. In order to meet graduation requirements, a Gillings M.P.H. practicum must:

1. Occur after a student has completed the Gillings M.P.H. Core courses, the M.P.H. practicum preparation course (SPHG 701), and at least one concentration-required course from the student's declared concentration. In extenuating circumstances and with the approval from the student's declared concentration, some exceptions may apply.
2. Yield a least two student-generated products, produced in the practicum setting for the practicum setting, that allow for attainment of at least three (CEPH) M.P.H. Foundational and two concentration-specific competencies (Appendix A). In extenuating circumstances and with the approval from the concentration, students can petition to substitute up to two CEPH Foundational competencies for the concentration-specific competencies.
3. Be mentored by a supervisor (preceptor) with an advanced degree in public health or equivalent experience with expertise in the practicum project area.
4. Comprise a *minimum* of 200 hours (equivalent to five weeks of full-time work) in a location approved for student travel (UNC Travel Policy (https://global.unc.edu/files/2018/02/UNC-Travel-Policy-Final.pdf)), and the student must complete *UNC Gillings International Pre-Departure Travel Requirements* prior to travel.

Culminating Experience

Each student completes a 3-credit culminating experience and produces a high-quality written product that is completed near the end of the program of study. This culminating experience ideally is delivered in a manner that is useful to external stakeholders, such as nonprofit or governmental organizations, and could take the form of a course-based capstone project or master's paper, but will be tailored to the concentration a student chooses.

Academic Advising and Faculty Mentoring

We are committed to providing quality academic advising and mentoring for all students. We ensure that M.P.H. students get the guidance they need with several components: 1) an orientation program that provides an overview of the types and sources of M.P.H. advising; 2) cohort advising sessions to disseminate information that is relevant to course planning and registration; 3) faculty mentoring that provides students with tailored support for their academic, professional, personal development, and practicum support.

M.P.H. students will complete a 2-semester, 12-credit-hour **Integrated Core** taught by an interdisciplinary team of instructors. The 6-credit first semester (fall) focuses on understanding public health issues, and the second semester (6-credit spring courses) focuses on creating solutions to those issues.

All M.P.H. students take **COMPASS (Core Online Modules to Promote and Accelerate Student Success).** These brief, self-paced online modules are open for students prior to their first academic year. Students can complete any and all parts of COMPASS up to and including the first week of class.

Electives: For the remaining 9 credits, students are free to choose elective courses from any of the 12 concentration areas listed above or from other courses in the Gillings School.

For information on policies and procedures, please visit the Gillings School Student Handbook (https://sph.unc.edu/students/gillings-school-student-handbook) Web site.

DEPARTMENT OF PUBLIC POLICY (GRAD)

Contact Information

Department of Public Policy
Visit Program Website (http://publicpolicy.unc.edu)

Daniel P. Gitterman, Chair

UNC has a distinguished tradition in public policy as a charter member of the Association for Public Policy Analysis and Management (APPAM). UNC Public Policy has faculty expertise in education and labor markets; environment and human welfare; innovation and entrepreneurship; science and technology policy; social policy and inequality; health policy, bioethics, and human rights; international development policy; global conflict and cooperation; and other policy areas.

In addition to the M.A. and Ph.D. degree, Public Policy offers a undergraduate major and minor in public policy and a graduate minor for interested students in other academic units. There is collaboration with graduate programs at the master's and doctoral levels offered by the College of Arts and Sciences and UNC professional schools. Doctoral students in public policy may enroll in classes at Duke University (to which there is a regular free bus service) as well as North Carolina State University without additional cost.

Research and Faculty Expertise

UNC Public Policy faculty members have particular strengths in seven broad areas of policy research and application:

Education and Labor Markets

Public policy research in the area of education policy includes evaluation of policies, programs, and schools in K–12 education, early childhood education, and postsecondary education. In addition, faculty interests include how educational policies affect inequality in student, teacher, and school outcomes. Other topics on labor markets in the United States include policies that impact working families, tax policies, self-employment, professional/occupational licensing, and the link between higher education and the labor market. (Related faculty: Gitterman, Handa, Hemelt, Lauen, Moulton)

Environment and Human Welfare

Public policy research in the area of environment and human welfare (including health) focuses on climate change, energy policy, and environmental and natural resource management policies in national, state, and developing country contexts. (Related faculty: Handa)

Innovation and Entrepreneurship; Science and Technology Policy

Public policy research in this area focuses on regional clustering of scientific knowledge, innovation, and entrepreneurship; the commercialization of academic research; and factors that promote technological change and economic growth. Moreover, the Research Triangle Park (RTP) is itself internationally recognized as a premier example of knowledge-based economic development. (Related faculty: Feldman)

Social Policy and Inequality

Public policy research focuses on the ways that social policies ameliorate or exacerbate disparities within and between groups. Specific research expertise include the United States' social safety-net policies, innovative policy incentives (such as cash transfer incentives in developing countries), marriage, and women's reproductive health and rights. This area also includes the study of politically relevant identity groups, such as racial and ethnic minorities groups, low-income individuals, women, members of LGBTQ* communities, and immigrants. (Related faculty: Gitterman, Gutierrez, Handa, Hemelt, Kreitzer, Moulton, Rubalcaba)

Health Policy, Bioethics, and Human Rights

Public policy research in health policy—domestically and globally—includes a focus on mental health and substance abuse; maternal, reproductive, and infant health; AIDS and infectious disease control; environmental health; health insurance and managed care; and biomedical and behavioral research. Much of this research is focused on improving health behaviors and outcomes, reducing health inequalities, understanding the economic and institutional basis of effective policies, and exploring ethical and rights-based approaches to health. (Related faculty: Durrance, Gitterman, Guttierez, Handa, Kreitzer, MacKay, Meier, Rubalcaba)

International Development Policy

Public policy research in this area explores the interplay between economics, politics, and human rights approaches in shaping development policy. Specific topics include the household and community determinants of human capital investment; the impact of social programs and policies on poverty, migration, and human development; household barriers to labor market participation; drivers of civil conflict; corruption; natural resource governance; poverty and environment trade-offs and synergies; energy poverty; aid accountability; public opinion regarding foreign direct investment; the human right to health. (Relevant faculty: Guttierez, Handa, Meier, Sullivan, Zimmerman)

Global Conflict and Cooperation

Public policy research in this area includes challenges where the causes and consequences extend beyond the borders of any one country. Faculty study how effectively national governments, transnational organizations, and the institutions of global governance respond to these global issues. Specific areas of expertise include the impact of international/regional economic integration on labor standards; the effects of foreign economic and military aid; external interventions into domestic armed conflicts; how international law affects public health, international accountability, and anti-corruption efforts; international migration; and international cooperation to address critical environmental issues. (Relevant faculty: Gitterman; Meier, Sullivan, Zimmerman)

Admission

Students are admitted to the doctoral program in public policy from diverse backgrounds in both academic preparation and experience. In preparation for doctoral study, applicants should have some exposure to intermediate microeconomics, basic statistics, and quantitative analysis (including calculus); a master's degree and some public policy-related work experience are desirable. All entering students are also required to take a math course (PLCY 700) immediately prior to the beginning of their first semester.

Applications for admission in the fall semester must be received no later than the posted deadlines for the following fall semester. Applications must be received by the December deadline to receive full consideration

for Graduate School competitive awards. All prospective students must take the Graduate Record Examination (GRE), and applicants from non-English-speaking countries who do not have a degree from a U.S. institution must also submit results of the Test of English as a Foreign Language (TOEFL). Factors considered in the application review include the academic transcripts, GRE scores, class rank, references, statements of interest, fit with faculty research clusters, and professional experience.

Financial Assistance

Students who apply by the December deadline and who are admitted will be considered for a range of financial support, including Graduate School fellowships, teaching assistantships, and research assistantships. Many awards grant full tuition privileges and health insurance coverage and student fees, substantially increasing their value to the student. Prospective students are encouraged to contact faculty members whose research is in areas of their potential interest and experience.

Research Centers and Institutes

A range of University of North Carolina research centers and institutes, many of which conduct nationally and internationally distinguished policy-related research, also extends research opportunities. Examples include the following:

Carolina Population Center

Conducts internationally distinguished research to benefit world populations; train the next generation of population scholars; build skills, capacity, and improved methodologies; and disseminate data and findings to population professionals, policymakers, and the public.

Cecil G. Sheps Center for Health Services Research

Conducts interdisciplinary research to improve the health of individuals, families, and populations by understanding the problems, issues, and alternatives in the design and delivery of health care services.

Center for Community Capital

Conducts research to help reduce poverty and inequality by creating more effective strategies to reintegrate America's disadvantaged communities and their residents into the market economy.

Center for Urban and Regional Studies

Conducts research on urban issues and processes of urbanization, such as new community development, housing market dynamics, and national home ownership policies, models of urban growth, residential preferences, coastal zone management, and planning for natural hazards.

Frank Hawkins Kenan Institute of Private Enterprise

Conducts research and technical assistance on projects to help businesses turn obstacles into opportunities and to help countries and communities identify their competitive strengths and develop innovative strategies and partnerships to achieve their goals.

Frank Porter Graham Child Development Institute

Pursues research to create new knowledge to enhance the lives of children and their families.

Howard W. Odum Institute for Research in Social Science (IRSS)

The oldest institute in the United States for the cooperative study of problems in the general field of social sciences maintains extensive survey and census archives and assists in design and analysis of social research.

The Institute for the Environment

Organizes and supports interdisciplinary environmental science and decision-making research across and beyond the campus on global, national, and North Carolina environmental problems.

Water Resources Research Institute

Formulates research programs responsive to state water resource problems. Provides local, state, and federal agencies with research to make better decisions in managing water resources.

For more information, visit the Public Policy Web site (http://publicpolicy.unc.edu), or contact Admissions, UNC Public Policy, CB #3435, Chapel Hill, NC 27599-3435. Telephone: (919) 962-1600.

Doctor of Philosophy

UNC Public Policy offers the Ph.D. degree to students who aim to contribute new knowledge and address major domestic and global policy challenges. The Ph.D. in public policy combines core foundations in theory, empirical and normative analysis, and a policy field area. The core curriculum is designed to help each doctoral student develop and use appropriate theoretical and analytical approaches to address problems in policy areas such as education and labor markets; environment and human welfare; innovation and entrepreneurship/science and technology policy; social policy and inequality; health policy, bioethics, and human rights; international development policy; and global conflict and cooperation.

Graduates have earned faculty positions at academic institutions including Arizona State University, Brigham Young University, Brown University, Duke University, East Tennessee University, George Mason University, Indiana University–Bloomington, John Hopkins University, Leiden University (Netherlands), National Cung Chong University (Taiwan), National Open University (Taiwan), National University of Singapore, North Carolina State University, Saint Augustine's University, San Francisco State University, Soo Chow University (Taiwan), Stony Brook University, Sungkykunkwon University (Korea), Tung Hai University (Taiwan), University of Alabama–Huntsville, University of Albany, University of California–Irvine, University of Colorado–Denver, University of Denver, University of Georgia, University of Missouri–Columbia, University of New Mexico, University of North Carolina–Asheville, University of North Carolina–Chapel Hill, University of North Carolina–Greensboro, University of Oregon, University of Pennsylvania, University of Southern California, and Vanderbilt University.

Other alumni have accepted positions at respected think tanks or applied policy research organizations including the Abt Associates, American Institutes for Research, Brookings Institution, CEB Global, Economic Policy Institute, Environmental Defense Fund, IMPAQ International, Innovative Policyworks, Merck, RAND, RTI, RxAnte, Scope International, and Social and Scientific Systems, Inc.

Graduates have served in federal and state government or quasi-government organizations: Maine Office of Innovation and Science, National Youth Commission Minister (Taiwan), United Nations Development Programme, UNICEF, U.S. Centers for Disease Control and Prevention, U.S. Department of Agriculture, U.S. Department of Energy, U.S. Department of Health and Human Services, U.S. Environmental Protection Agency, U.S. Government Accountability Office, U.S. Office

of National Coordinator for Health IT, White House Office of Science and Technology Policy, and the World Bank.

Degree Requirements

Core Courses

Once enrolled, each student completes a set of doctoral-level core courses in applications of interdisciplinary social science theory to public policy issues as well as research design, appropriate research methods (including econometrics), and a specialization in a particular subject area of public policy. Doctoral students are required to complete 47 hours of coursework, including 29 hours in core courses common to all students and 18 hours in a self-defined policy specialization field. Core courses include

Code	Title	Hours
PLCY 700	Mathematical Preparation for Public Policy and Economics	3
PLCY 716	Politics and Public Policy Theory	3
PLCY 717	Institutional Analysis for Public Policy	3
PLCY 780	Normative Dimensions of Policy Analysis and Research: Theories, Methods, and Ethical Foundations	3
PLCY 788	Advanced Economic Analysis for Public Policy I	3
PLCY 789	Advanced Economic Analysis for Public Policy II	3
PLCY 801	Design of Policy-Oriented Research	3
PLCY 810	Public Policy Seminar (2 semesters)	2
HPM 881	Linear Regression Models	3
PLCY 882	Advanced Panel Data Methodology for Public Policy	3
Total Hours		29

Students who have successfully completed graduate courses elsewhere that approximate these required courses may petition to have up to nine such hours counted toward the Ph.D. in public policy. Courses proposed for transfer must be approved as part of the student's program within the department, and material from those courses may be included as part of the comprehensive doctoral examinations. Students normally spend two years in full-time course work, and somewhat longer if they enter the program without key prerequisite courses or a master's degree in a related field. A dissertation is required.

Policy Field

Each student designs an individual course of study for a policy field. The 18-credit-hour requirement gives students rigorous training in the theory, methods, and subject matter within a substantive policy field. The field area course of study must include both doctoral-level understanding of the subject matter of the policy area and at least three hours of research methods, in addition to the econometrics sequence (HPM 881 and PLCY 882) and research design course (PLCY 801) required for the core. Students take no less than nine credit hours of courses related to the theory and subject matter of their policy field; up to six hours of credits may be taken as independent studies. The remaining six hours of the required policy field credits are normally completed as PLCY 992 and PLCY 994 during master's and dissertation research. The student's additional research methods course should provide her or him with the ability to design and carry out dissertation research and to continue making scholarly contributions in his or her chosen field. Each student is assisted by an individualized program committee in identifying courses, independent readings, and other sources of information to acquire both the substantive knowledge and the quantitative and other analytical skills appropriate for the student's policy field.

Master's Requirements

The M.A. in public policy is available as an option for students who are opting to exit the Ph.D. program prior to completing all requirements for the PhD. In such cases, the student must meet departmental and Graduate School degree requirements for a master's degree, including 30 earned credit hours, two full semesters of residence credit, passing an exam requirement, and completing a thesis or (thesis substitute) project.

For students choosing to exit with the M.A., the 30 credit hours will be earned through core and elective courses, generally completed in the student's first two years in the program. Students must take and pass the written core exam and complete a thesis to earn the M.A. credential.

Students nearing completion of their core courses and intending to exit the program without completing the Ph.D. may petition the director of graduate studies to write an approved thesis substitute with an oral exam defense.

The oral defense will occur before at least three committee members and will cover appropriate core course material from the program in lieu of sitting for the written core exam. The thesis substitute format will be determined by agreement between the student and the faculty committee and may include a literature review or discussion/research paper.

Students who decide to exit the program by completing these latter M.A. requirements may not later choose to continue for the Ph.D. without taking and passing the core written exam.

Graduate Minor

Doctoral and master's students not enrolled in the Ph.D. program in public policy may elect to minor in public policy. Requirements for the minor include 15 hours of approved coursework in public policy for doctoral students, or nine credits for master's students, approved by the director of graduate studies in public policy and the student's major department. These credits may not be double-counted as courses required for the student's major degree.

Professors

Maryann P. Feldman, Innovation, Entrepreneurship, Higher Education and the Commercialization of Academic Research, Factors That Promote Technological Change and Economic Growth
Daniel P. Gitterman, American Politics and Public Policy, Social and Health Policy, Labor Market
Sudhanshu Handa, Human Resource Economics, Poverty, Program Evaluation, International Development Policy

Associate Professors

Christine Piette Durrance, Health Economics and Policy, Public and Applied Microeconomics, Industrial Organization/Antitrust Policy
Steven Hemelt, Economics of Education, Education Policy, Labor Economics, Policy Design and Evaluation
Benjamin Mason Meier, Global Health Policy, Justice and Policy
Jeremy Moulton, Public Economics
Douglas L. Lauen, Education Policy, Organizational Theory, Stratification
Patricia Sullivan, International Relations, Comparative Politics, United States Security Policy

Assistant Professors

Carmen Guttierez, Social Demography, Health Disparities, Inequalities Across Race, Ethnicity, and Citizenship
Rebecca Kreitzer, American Politics and Public Policy, Public Opinion, State Institutions, Women and Politics, Interest Groups
Douglas MacKay, Social and Political Philosophy, Ethics and Public Policy, Bioethics, Philosophy of Law, Environmental Ethics
Joaquin Rubalcaba, Labor and Health Economics, Applied Microeconomics, Public Economics, Environmental Economics
Brigitte Seim, Comparative Politics, Development Policy, Political Methodology

Teaching Associate Professor

Jeff Summerlin-Long, Immigration, Law, Social and Economic Inequality

Teaching Assistant Professor

Anna Krome-Lukens, History and Public Policy

PLCY

Advanced Undergraduate and Graduate-level Courses

PLCY 415. Advocacy for Policy Change. 3 Credits.
This experiential learning course will begin by exploring a number of policy domains where existing laws do not seem to produce positive outcomes for average citizens and state residents. We will then investigate potential ways to address the issue, and pursue a line of advocacy for a particular policy issue. Students will interact with state legislators and their aides as well as non-governmental organizations in order to uncover and employ strategies for policy advocacy.
Requisites: Prerequisite, PLCY 210 or 220.
Gen Ed: EE- Field Work.
Grading status: Letter grade.

PLCY 425. Risks, Shocks, and the Safety Net. 3 Credits.
Many risks and shocks can make individuals and families vulnerable to economic hardship. This course examines America's social policy regime through a wide-ranging investigation of the origins, development, and future of critical features of our social safety net. We pay particular attention to challenges emerging in the era of globalization.
Gen Ed: US.
Grading status: Letter grade.

PLCY 430. Analysis of National Security Policy. 3 Credits.
Course explores contemporary threats to national security, approaches to national security strategy, policy instruments, the role of military force, and the policy-making process.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: PWAD 430, POLI 430.

PLCY 435. Designing for Impact: Social Enterprise Lab. 3 Credits.
Focuses on the entrepreneurial process to solve social or environmental issues. Using modern methods and tools, students engage in experiments to test hypotheses around problem definition, opportunity recognition and solutions. Experience gained in this course enable students to launch their own social enterprise or join social enterprises in progress.
Gen Ed: SS, EE- Field Work.
Grading status: Letter grade.

PLCY 460. Quantitative Analysis for Public Policy. 4 Credits.
Application of statistical techniques, including regression analysis, in public policy program evaluation, research design, and data collection and management. Honors version available
Gen Ed: QI.
Grading status: Letter grade.

PLCY 460H. Quantitative Analysis for Public Policy. 4 Credits.
Application of statistical techniques, including regression analysis, in public policy program evaluation, research design, and data collection and management.
Gen Ed: QI.
Grading status: Letter grade.

PLCY 470. Business, Competition, and Public Policy. 3 Credits.
This course focuses on competition policy in the United States using relevant Supreme Court decisions as well as economic and policy-related motivation for specific business behavior.
Grading status: Letter grade.

PLCY 475. The Political Economy of Food. 3 Credits.
This course examines the political and economic dimensions of the food we eat, how it is produced, who eats what, and related social and environmental issues, both domestic and international, affecting the production, pricing, trade, distribution, and consumption of food. Honors version available
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: ENEC 475.

PLCY 475H. The Political Economy of Food. 3 Credits.
This course examines the political and economic dimensions of the food we eat, how it is produced, who eats what, and related social and environmental issues, both domestic and international, affecting the production, pricing, trade, distribution, and consumption of food.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: ENEC 475H.

PLCY 480. Environmental Decision Making. 3 Credits.
Introduces factors shaping environmental decision making by individuals, businesses, governments, advocacy groups, and international institutions. Explores public policy incentives and action strategies for influencing them.
Gen Ed: SS, NA.
Grading status: Letter grade
Same as: ENEC 480.

PLCY 485. Poverty, Health, and Human Development in Low Income Countries. 3 Credits.
This course provides an understanding of how poverty is defined, the consequences of poverty, and policies to reduce poverty. It explores the determinants of human development outcomes from an interdisciplinary perspective (with a heavy economics focus).
Requisites: Prerequisite, ECON 101.
Gen Ed: SS.
Grading status: Letter grade.

PLCY 490. Special Topics in Public Policy. 3 Credits.
Special topics in public policy for undergraduate and graduate students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

PLCY 496. Independent Study/Reading in Public Policy. 1-6 Credits.
By special arrangement and permission of the instructor. Independent reading in public policy.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PLCY 520. Environment and Development. 3 Credits.
Reviews environmental problems in developing countries. Analyzes proposed solutions, such as legal remedies, market instruments, corporate voluntary approaches, international agreements, and development policies. Discusses the link between trade and environment, environmental cases from the World Trade Organization, and sustainable development.
Gen Ed: SS, GL.
Grading status: Letter grade
Same as: ENEC 520.

PLCY 527. Applied Public Finance. 3 Credits.
This course provides a foundation in public finance theory and applications. Students learn to analyze taxation policies and expenditures on income redistribution, programs for the poor (e.g., TANF), and social insurance programs (e.g., Social Security). Honors version available
Requisites: Prerequisite, ECON 310 or 410, or PLCY 410 or 788.
Grading status: Letter grade.

PLCY 527H. Applied Public Finance. 3 Credits.
This course provides a foundation in public finance theory and applications. Students learn to analyze taxation policies and expenditures on income redistribution, programs for the poor (e.g., TANF), and social insurance programs (e.g., Social Security).
Requisites: Prerequisite, ECON 310 or 410, or PLCY 410 or 788.
Grading status: Letter grade.

PLCY 530. Educational Problems and Policy Solutions. 3 Credits.
Reviews current debates and policy solutions in education. Topics analyzed through three of the most commonly used evaluative criteria: equity, efficiency, and effectiveness. Topics: equality of educational opportunity, racial segregation, the black-white test score gap, school choice, and the use of incentives to promote increased performance. Lecture, case studies, discussion. Honors version available
Gen Ed: SS, US.
Grading status: Letter grade.

PLCY 530H. Educational Problems and Policy Solutions. 3 Credits.
Reviews current debates and policy solutions in education. Topics analyzed through three of the most commonly used evaluative criteria: equity, efficiency, and effectiveness. Topics: equality of educational opportunity, racial segregation, the black-white test score gap, school choice, and the use of incentives to promote increased performance. Lecture, case studies, discussion.
Gen Ed: SS, US.
Grading status: Letter grade.

PLCY 565. Global Health Policy. 3 Credits.
Coursework will focus on public policy approaches to global health, employing interdisciplinary methodologies to understand selected public health policies, programs, and interventions. For students who have a basic understanding of public health.
Gen Ed: GL.
Grading status: Letter grade
Same as: HPM 565.

PLCY 570. Health and Human Rights. 3 Credits.
Course focuses on rights-based approaches to health, applying a human rights perspective to selected public health policies, programs, and interventions. Students will apply a formalistic human rights framework to critical public health issues, exploring human rights as both a safeguard against harm and a catalyst for health promotion.
Gen Ed: PH, GL.
Grading status: Letter grade
Same as: HPM 571.

PLCY 575. Innovation, Science, and Public Policy. 3 Credits.
Introduction to analysis of science policy. Course explores how events transformed science's role in American life and how science relates to industry and economic development. Topics include the mechanisms of allocating scientific resources, the commercialization of academic discoveries, regulating emerging technology, and achieving consensus on controversial scientific issues.
Grading status: Letter grade.

PLCY 581. Research Design for Public Policy. 3 Credits.
Students will explore the scientific method as applied to policy research. They will formulate testable policy research questions, become familiar with methods for conducting policy research, and learn to think critically about causal inference.
Requisites: Pre- or corequisite, PLCY 460.
Grading status: Letter grade.

PLCY 585. American Environmental Policy. 3 Credits.
Intensive introduction to environmental management and policy, including environmental and health risks; policy institutions, processes, and instruments; policy analysis; and major elements of American environmental policy. Lectures and case studies. Three lecture hours per week.
Gen Ed: HS, NA.
Grading status: Letter grade
Same as: ENVR 585, ENEC 585, PLAN 585.

PLCY 590. Special Topics in Public Policy. 3 Credits.
Special topics for undergraduate and graduate students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

PLCY 596. Independent Study/Reading in Public Policy. 1-6 Credits.
Permission of the instructor. Independent reading in public policy.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

PLCY 686. Policy Instruments for Environmental Management. 3 Credits.
Design of public policy instruments as incentives for sustainable management of environmental resources and ecosystems, and comparison of the effects and effectiveness of alternative policies.
Requisites: Prerequisite, ECON 410 or PLAN 710.
Gen Ed: SS.
Grading status: Letter grade
Same as: ENEC 686, ENVR 686, PLAN 686.

PLCY 690. Special Topics in Public Policy. 3 Credits.
Special topics for graduate or undergraduate students.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

PLCY 691H. Honors in Public Policy. 3 Credits.
Permission of the instructor. In preparing their honors theses, students will formulate a testable policy research question, design a study to answer this research question, and learn to think critically about causal inference.
Requisites: Prerequisites, PLCY 460 and 581.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

PLCY 692H. Honors in Public Policy. 3 Credits.
Permission of the instructor. For senior public policy majors. Directed research for the honors thesis. Students may only receive credit for one semester of this course. An application for enrollment must be completed by the student and approved by the director of the public policy honors program.
Requisites: Prerequisite, PLCY 691H.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

PLCY 696. Independent Study/Reading in Public Policy. 1-6 Credits.
Permission of the instructor. Independent reading in public policy.
Grading status: Letter grade.

PLCY 698. Senior Capstone in Public Policy. 4 Credits.
Students apply knowledge and skills gained in the major to a real-world policy problem. In small teams, students produce actionable, client-centered, public policy analysis for a government agency or nonprofit organization. Students also develop skills in team work, leadership, communication, professional etiquette, and time management.
Requisites: Prerequisite, PLCY 460. Pre- or corequisite, PLCY 581.
Gen Ed: CI, EE- Mentored Research, NA.
Grading status: Letter grade.

Graduate-level Courses

PLCY 700. Mathematical Preparation for Public Policy and Economics. 3 Credits.
An intensive preparation course in mathematical and statistical analysis for public policy and economics. Reviews and introduces topics in linear algebra, calculus, optimization and mathematical statistics, and prepares students for PLCY 788 and PLCY 789. Also serves as a prerequisite for HPM 881, which satisfies one methods requirement in the Ph.D. program.
Grading status: Letter grade.

PLCY 710. Introduction to Public Policy. 3 Credits.
This course examines the history and development of the field of public policy and several theoretical frameworks that contribute to public policy analysis including welfare economics, theories of distributive justice, political science, and organizational theory.
Grading status: Letter grade.

PLCY 716. Politics and Public Policy Theory. 3 Credits.
Students build a theoretical foundation about the politics of policymaking. We examine the governmental institutions and actors that make policy decisions, incentive structures, and influences that shape these decisions as well as the macro-environment within which policy demands arise and policy decisions are made.
Grading status: Letter grade.

PLCY 717. Institutional Analysis for Public Policy. 3 Credits.
Course examines the role of institutions in the analysis of public policy formulation, implementation, and evaluation. Consider how institutions are used to address market failures, how formal and informal institutions form, persist, and change, and theoretical and empirical approaches for studying the role of institutions.
Grading status: Letter grade.

PLCY 760. Migration and Health. 3 Credits.
With a focus on Latin American migration to the U.S., this course introduces students to the inter-relationships between migration and health. Students will gain an understanding of the theories of migration and the ways in which immigration and settlement policies influence the health and well-being of immigrant populations.
Grading status: Letter grade.

PLCY 780. Normative Dimensions of Policy Analysis and Research: Theories, Methods, and Ethical Foundations. 3 Credits.
Covers theories of distributive justice and how ethical arguments can be used as a basis for public policy decision-making.
Grading status: Letter grade.

PLCY 788. Advanced Economic Analysis for Public Policy I. 3 Credits.
This course introduces microeconomic theory using multivariate calculus and constrained optimization. Topics covered include consumer theory, producer theory, market equilibrium, taxes, and market power. Applied public policy examples are incorporated.
Grading status: Letter grade
Same as: PLAN 788.

PLCY 789. Advanced Economic Analysis for Public Policy II. 3 Credits.
This course provides further applications of economic theory to public policy including risk and uncertainty, information economics, general equilibrium and welfare policy, externalities, public goods and taxation, and game theory.
Requisites: Prerequisite, PLCY 788.
Grading status: Letter grade
Same as: PLAN 789.

PLCY 799. Selected Topics in Public Policy. 3 Credits.

PLCY 801. Design of Policy-Oriented Research. 3 Credits.
Logic of designing research for the analysis of planning problems and the formulation of public policies. Elements of research design, case study, survey research, quasi-experimental designs, and the social experiment are covered.
Grading status: Letter grade
Same as: PLAN 801.

PLCY 802. Advanced Seminar in Research Design: Data, Methods, and Evaluation. 3 Credits.
Three main objectives: to deepen students' understanding of important issues and topics in the design of empirical research, to further develop students' ability to critically evaluate research designs and policy-related products, and to aid in developing a research paper, dissertation, or other product.
Grading status: Letter grade
Same as: PLAN 802.

PLCY 805. Public Policy Workshop. 1-3 Credits.
For graduate students in Public Policy Analysis who are undertaking team projects under faculty supervision. Projects vary from year to year. All will relate to public policy and will involve interaction with real clients. The intent is to provide students with an opportunity to apply theory and techniques of policy analysis in actual problem situations.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PLCY 810. Public Policy Seminar. 1 Credit.
Weekly forum for public policy scholars and officials to discuss the relationships between policy research and policy outcomes. Presentations by invited speakers and doctoral students. .
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PLCY 820. American Welfare State. 3 Credits.
This course will examine the American welfare state through a wide-ranging investigation of the origins, development, and future of the most critical features of United States politics, social policy, and law.
Grading status: Letter grade.

PLCY 830. Seminar in Education Policy I. 3 Credits.
Covers economic and sociological theories on the determinants of learning and the demand for schooling. Topics include stratification, school effects, schooling process and socialization, family, peer and contextual effects, and the education production function.
Grading status: Letter grade.

PLCY 831. Seminar in Education Policy II. 3 Credits.
Explores educational policy problems and the evidence and methods used to assess such problems. Topics include racial social gap, school choice, educational accountability, assessment, standard setting, teacher effects, resource allocation, and early childhood education.
Grading status: Letter grade.

PLCY 882. Advanced Panel Data Methodology for Public Policy. 3 Credits.
Students will apply models and statistical techniques to original PLCY research; understand major techniques used to estimate causal relationships in quasi-experimental designs, including panel data and simultaneous equations models; and gain intuition and skills about the art of econometrics, including techniques for using complex survey data and handling missing data.
Grading status: Letter grade.

PLCY 895. Topics in Poverty and Human Resources. 3 Credits.
Topics covered include poverty, welfare, and human resources from an economic perspective. For students wanting to specialize in social and behavioral approaches to the study of population and demographic phenomena.
Grading status: Letter grade.

PLCY 901. Independent Study. 1-15 Credits.
This course allows graduate students in public policy analysis to receive credit for work on individual projects, designed in conjunction with a faculty supervisor. It is intended for students who are interested in pursuing academic topics not covered in scheduled courses.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

PLCY 992. Master's (Non-Thesis). 3 Credits.

PLCY 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF RELIGIOUS STUDIES (GRAD)

Contact Information

Department of Religious Studies
Visit Program Website (http://religion.unc.edu)

Barbara Ambros, Chair

Lauren Leve, Director of Graduate Studies
leve@email.unc.edu

Myra Quick, Student Services Manager, Registrar
quick@unc.edu

The graduate program in religious studies at the University of North Carolina at Chapel Hill deals with religion both as a distinctive human experience and as a mode of culture and history. Both orientations define religion as a broad area of human existence, and students are encouraged to explore the tension between those two general approaches. The interests of the department's faculty express the variety of methodological orientations in such study. Faculty members in other departments of the University offer strong interdisciplinary support.

The Graduate School of the University offers two degrees in religious studies: the master of arts and the doctor of philosophy. The Department of Religious Studies also sponsors the joint Duke–UNC Graduate Certificate in Middle East Studies. The M.A. program introduces students to the general problems and methods in the study of religion. Specific requirements include

- Thirty hours of course credit, including RELI 700 and one "gateway" graduate seminar
- A written comprehensive examination in the student's specific field of study
- A thesis of three to six credits and an oral defense of the thesis, and
- Demonstrated competence in a modern foreign research language

The Ph.D. program is primarily intended to prepare students for a career in university and college teaching and research in religious studies. It currently offers specialization in ancient Mediterranean religions, Islamic studies, medieval and early modern studies, religion in the Americas, religion and culture, and religions of Asia.

Ph.D. students should expect to take at least 18 hours of course work beyond the M.A. level. Other requirements in the doctoral program include

- Completion of requirements specific to one of the specialty fields of study noted above
- A set of written and oral doctoral examinations specific to the student's field of study
- Demonstrated reading competence in a second modern foreign research language, and
- A doctoral dissertation and an oral defense of the dissertation

Additional information about the graduate program in religious studies is available at the department's Web site (http://religion.unc.edu).

Details on the joint Duke–UNC Graduate Certificate in Middle East Studies are available at this Web site (http://ncmideast.org/courses/graduate-certificate).

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Barbara Ambros (57), Japanese Religions, East Asian Religions, Buddhism, Religion in Asian Diaspora Communities
Yaakov S. Ariel (48), Judaism and Evangelical Christianity in America, Messianic Movements and Missions, Christian-Jewish Relations
Bart D. Ehrman (19), New Testament Interpretation and Textual Criticism, Early Christianity
Carl W. Ernst (42), Islamic Studies, Sufism, Religions of West and South Asia
Jodi Magness (54), Archaeology of Palestine, Qumran and the Dead Sea Scrolls, Ancient Synagogues, Early Judaism
Zlatko Plese (49), Religion in Late Antiquity, Greco-Roman Philosophy and Religion, Gnosticism and Manichaeism

Associate Professors

Jessica A. Boon (55), Medieval and Early Modern Christian Thought, Mystical Traditions, Spain and the New World
Juliane Hammer (53), Islamic Studies, Gender in American Muslim Communities, Modern Muslim Approaches to the Qur'an
David Lambert (15), Hebrew Bible, Ancient Mediterranean Religions
Lauren Leve (56), Buddhism in South and Southeast Asia, Ethnography of Religion, Globalism and Postcoloniality
Evyatar Marienberg (17), Rabbinic Judaism and Jewish Law, Medieval and Early Modern Studies, Contemporary Catholicism
Todd Ramón Ochoa (65), Religion in Latin America and the Caribbean, Ethnography of Religion, Critical Cultural Theory
Randall Styers (52), Cultural History of the Study of Religion, Modern Western Religious Thought, Critical Cultural Theory

Assistant Professors

Brandon Bayne (61), Religion in the Americas, Global Christianity
Andrea Cooper (59), Modern Jewish Thought and Culture
Joseph Lam (64), Hebrew Bible, Biblical Hebrew, Comparative Semitic Grammar
Hugo Mendez (45), Ancient Mediterranean Religions, Cultural History of New Testament Texts, Early and Late Antique Christianity, Greek
Brendan Thornton (40), Religion in Latin American and the Caribbean, Evangelical Christianity, Ethnography of Religion

Adjunct Professors

Cemil Aydin, Modern Middle Eastern History, Modern Asian History
Jason Bivins, Religion in the United States, Critical Cultural Theory
Philip Gura, Religion and American Literature
Jonathan Hess, Modern Judaism
Charles Kurzman, Islamic Movements
David Morgan, Material Religion
Fred Naiden, Ancient Mediterranean Religions
Albert Rabil, Renaissance and Early Modern History, Women's Studies
James Rives, Ancient Mediterranean Religions
Omid Safi, Islamic Studies

Adjunct Associate Professors

Anna Barry Bigelow, Islamic Studies, Religions of South Asia, Religion and Conflict
Levi McLaughlin, Religious Traditions of Japan and China, Buddhism in Modern Society
Christian O. Lundberg, Critical Cultural Theory, Rhetoric, Cultural Studies
Barry Saunders, Ritual Studies and Biomedicine
Margaret Wiener, Indonesian Religions
Molly Worthen, North American Religious and Intellectual History

Adjunct Assistant Professor

Maria Doerfler, Early Christianity

Professors Emeriti

David Halperin
Peter I. Kaufman
Laurie Maffly-Kipp
William J. Peck
Jack M. Sasson
John H. Schutz
Ruel W. Tyson
John Van Seters

RELI

Advanced Undergraduate and Graduate-level Courses

RELI 401. Introductory Biblical Hebrew I. 3 Credits.
The first part of a two-semester introduction to the grammar of biblical Hebrew.
Gen Ed: FL.
Grading status: Letter grade.

RELI 402. Introductory Biblical Hebrew II. 3 Credits.
The second part of a two-semester introduction to the grammar of biblical Hebrew.
Requisites: Prerequisite, RELI 401; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

RELI 403. Intermediate Classical Hebrew I. 3 Credits.
A consolidation of the fundamentals of classical Hebrew grammar via readings of biblical texts of various genres (including both prose and poetry).
Requisites: Prerequisite, RELI 402; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

RELI 404. Intermediate Classical Hebrew II. 3 Credits.
Further readings of classical Hebrew texts, focusing on biblical poetry as well as early postbiblical material (e.g., nonbiblical texts from Qumran, Mishnah/Tosefta).
Requisites: Prerequisite, RELI 403; permission of the instructor for students lacking the prerequisite.
Gen Ed: FL.
Grading status: Letter grade.

RELI 409. Greek New Testament. 3 Credits.
Prerequisite, GREK 222; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: GREK 409.

RELI 410. Aramaic/Rabbinic Hebrew. 3 Credits.
Reading texts in rabbinic Hebrew or in biblical and/or talmudic Aramaic, with appropriate grammatical instruction.
Requisites: Prerequisites, RELI 403 and 404; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

RELI 411. Advanced Akkadian. 3 Credits.
Readings in literary, epistolary, and juridical texts.
Requisites: Prerequisites, RELI 403 and 404.
Grading status: Letter grade.

RELI 412. Ugaritic. 3 Credits.
Readings in the alphabetic texts of Ras Shamra and a study of the elements of Ugaritic grammar.
Requisites: Prerequisites, RELI 403 and 404.
Grading status: Letter grade.

RELI 413. Biblical Coptic and Early Egyptian Monasticism. 3 Credits.
Coptic, the last stage of Egyptian, a living language in the Roman and Byzantine period. Thorough grounding in the grammar of the Sahidic dialect as a basis for reading biblical monastic and Gnostic texts.
Gen Ed: BN, WB.
Grading status: Letter grade.

RELI 414. Syriac. 3 Credits.
An introduction to the grammar of Classical Syriac for the purpose of reading Syriac Christian texts from late antiquity. Knowledge of another Semitic language (e.g., Hebrew, Arabic) would be an asset but is not required.
Grading status: Letter grade.

RELI 420. Post-Holocaust Ethics and Theology. 3 Credits.
This course examines the challenges posed to ethics and theology by the Holocaust. We will address philosophical and moral issues such as the problem of evil, divine omniscience, omnipotence, suffering, theodicy, representation, testimony, and an ethics of memory. Honors version available
Gen Ed: PH, GL.
Grading status: Letter grade
Same as: JWST 420.

RELI 420H. Post-Holocaust Ethics and Theology. 3 Credits.
This course examines the challenges posed to ethics and theology by the Holocaust. We will address philosophical and moral issues such as the problem of evil, divine omniscience, omnipotence, suffering, theodicy, representation, testimony, and an ethics of memory.
Gen Ed: PH, GL.
Grading status: Letter grade
Same as: JWST 420H.

RELI 421. Religion and Science. 3 Credits.
This course explores the complex relation between religion and science in the modern world. Public disputes over teaching evolution in American schools serve as a central case study of this.
Gen Ed: PH.
Grading status: Letter grade.

RELI 423. Ethnicity, Race, and Religion in America. 3 Credits.
A theoretical inquiry into ethnicity, race, and religion as constituents of personal and communal identity. Emphasis on global migrations, colonial and postcolonial relations, diasporic communities, and issues of religious pluralism.
Requisites: Prerequisite, RELI 140; permission of the instructor for students lacking the prerequisite.
Gen Ed: US.
Grading status: Letter grade.

RELI 424. Gender Theory and the Study of Religion. 3 Credits.
An examination of contemporary gender theory, with particular focus on its application to the study of religion.
Gen Ed: PH.
Grading status: Letter grade
Same as: WGST 424.

RELI 425. Psychology of Religion. 3 Credits.
A critical exploration of the concept of religious experience as defined by such authors as William James and Sigmund Freud. Honors version available
Grading status: Letter grade.

RELI 425H. Psychology of Religion. 3 Credits.
A critical exploration of the concept of religious experience as defined by such authors as William James and Sigmund Freud.
Grading status: Letter grade.

RELI 426. The Sacrifice of Abraham. 3 Credits.
This course examines philosophical interpretations of the attempted sacrifice by Abraham of his beloved son, offering a comparative approach. The incident in Genesis is remarkably succinct for its controversial subject matter. We will compare this event with representations in Greek drama, the New Testament, and the Qur'an. Honors version available
Gen Ed: PH, BN.
Grading status: Letter grade.

RELI 426H. The Sacrifice of Abraham. 3 Credits.
This course examines philosophical interpretations of the attempted sacrifice by Abraham of his beloved son, offering a comparative approach. The incident in Genesis is remarkably succinct for its controversial subject matter. We will compare this event with representations in Greek drama, the New Testament, and the Qur'an.
Gen Ed: PH, BN.
Grading status: Letter grade.

RELI 427. Spirit Possession. 3 Credits.
This course explores the phenomenon of spirit possession and introduces students to various theoretical and methodological approaches to its academic study. In addition to critically engaging with accounts of spirit possession from around the world, students will explore various related themes of gender, power, and religious and cultural change.
Gen Ed: SS, BN.
Grading status: Letter grade.

RELI 428. Religion and Anthropology. 3 Credits.
Religion studied anthropologically as a cultural, social, and psychological phenomenon in the works of classical and contemporary social thought. Honors version available
Gen Ed: SS.
Grading status: Letter grade
Same as: ANTH 428, FOLK 428.

RELI 428H. Religion and Anthropology. 3 Credits.
Religion studied anthropologically as a cultural, social, and psychological phenomenon, in the works of classical and contemporary social thought.
Gen Ed: SS, SS.
Grading status: Letter grade
Same as: ANTH 428H, FOLK 428H.

RELI 429. Religion and Society. 3 Credits.
Sociological analysis of group beliefs and practices, both traditionally religious and secular, through which fundamental life experiences are given coherence and meaning. This course is a special version of SOCI 129 for juniors and seniors that explores the meanings and experiences of religion, as well as religion's role in communities, institutions, and societies through hands-on intensive research experience. Students may not receive credit for both SOCI 129 and SOCI/RELI 429.
Gen Ed: SS.
Grading status: Letter grade
Same as: SOCI 429.

RELI 430. Dimensions of Evil. 3 Credits.
This course explores the meaning of evil. By investigating the moral dimensions of evil, its social uses, its figuration in cross-cultural religious texts, theology, folklore, and political imaginaries, this course develops a critical framework for understanding the diverse manifestations and varied cultural renderings of evil in the modern world. Previously offered as RELI 526.
Gen Ed: PH, GL.
Grading status: Letter grade.

RELI 438. Religion, Nature, and Environment. 3 Credits.
A seminar on concepts of nature within religions and a variety of world-wide spiritual traditions. Emphasis on sacred space, place, and pilgrimage as a vital intersection of religion and nature. Honors version available
Gen Ed: PH.
Grading status: Letter grade.

RELI 438H. Religion, Nature, and Environment. 3 Credits.
A seminar on concepts of nature within religions and a variety of world-wide spiritual traditions. Emphasis on sacred space, place, and pilgrimage as a vital intersection of religion and nature.
Gen Ed: PH.
Grading status: Letter grade.

RELI 441. Religion in Early America. 3 Credits.
This course examines religion in America from precontact to the Civil War. We will chart the development of religious life, thought, and practice in North America, concentrating on areas later incorporated into the United States, but maintaining broad interest in other Americas. Honors version available
Gen Ed: HS, NA.
Grading status: Letter grade.

RELI 441H. Religion in Early America. 3 Credits.
This course examines religion in America from precontact to the Civil War. We will chart the development of religious life, thought, and practice in North America, concentrating on areas later incorporated into the United States, but maintaining broad interest in other Americas.
Gen Ed: HS, NA.
Grading status: Letter grade.

RELI 442. History of Religion in America since 1865. 3 Credits.
An examination of primary sources in the history of American religion since the Civil War.
Grading status: Letter grade.

RELI 443. Evangelicalism in Contemporary America. 3 Credits.
Juniors or seniors only. Examination of evangelicalism and its role in American society, politics, and culture. Exploration of its various subdivisions and its relation to such movements as fundamentalism, pentecostalism, revivalism, and premillennialism. Honors version available
Gen Ed: SS, US.
Grading status: Letter grade.

RELI 443H. Evangelicalism in Contemporary America. 3 Credits.
Juniors or seniors only. Examination of evangelicalism and its role in American society, politics, and culture. Exploration of its various subdivisions and its relation to such movements as fundamentalism, pentecostalism, revivalism, and premillennialism.
Gen Ed: SS, US.
Grading status: Letter grade.

RELI 444. Gender and Sexuality in Contemporary Judaism. 3 Credits.
The seminar examines the developments in gender roles and in sexuality in contemporary Judaism.
Gen Ed: CI, NA.
Grading status: Letter grade
Same as: JWST 444, WGST 448.

RELI 445. Asian Religions in America. 3 Credits.
A study of intercultural interaction and interreligious encounter focusing on Asian religions in America, 1784 to the present.
Gen Ed: GL, US.
Grading status: Letter grade
Same as: ASIA 445.

RELI 446. Christian-Jewish Relations throughout the Ages. 3 Credits.
An exploration of the varied and complex relationships which have developed between Christianity and Judaism, from the first century to the 21st century.
Gen Ed: HS.
Grading status: Letter grade.

RELI 448. Native and Christian: Indigenous Engagements with Christianity. 3 Credits.
This course examines diverse indigenous engagements with Christianity from earliest contacts to the present. Topics range from missionary contestations in colonial Mexico to the fight for religious freedom in 20th-century United States, from historical revitalization movements like the Ghost Dance to contemporary indigenous theologies in North and South America.
Gen Ed: US.
Grading status: Letter grade.

RELI 450. Sexuality in Jewish Tradition and History. 3 Credits.
This course deals with various topics related to sexuality and marriage in Jewish tradition and history: sex outside of marriage, wedding ceremonies, regulations of marital sex, menstruation, homosexuality, and more.
Gen Ed: PH, WB.
Grading status: Letter grade
Same as: WGST 450.

RELI 454. The Reformation. 3 Credits.
Examines a movement of religious reform that shattered Latin Christendom and contributed many of the conditions of early modern Europe. Emphases: religious, political, social.
Grading status: Letter grade
Same as: HIST 454.

RELI 465. Monotheistic Mysticism. 3 Credits.
In medieval Jewish Kabbalah, Christian mysticism, and Islamic Sufism, devotees attempt to express direct experiences of an infinite God. This course examines theories of mystical language, particularly the negation of language, the turn to the visual and the body, and the tension between communal and individual expressions of the divine.
Gen Ed: BN, WB.
Grading status: Letter grade.

RELI 474. Buddhist Meditation, Mindfulness, and Modernity. 3 Credits.
This course introduces students to a variety of ancient and modern approaches to Buddhist meditation, to their philosophical underpinnings, and to the various claims and purposes associated with mindfulness practices in the past and today. Students will be expected to practice the different types of meditation discussed.
Gen Ed: PH, EE- Field Work.
Grading status: Letter grade.

RELI 480. Modern Muslim Literatures. 3 Credits.
Stresses the diversity of modern Islamic experience by examining the works of various Muslim authors. Genres may include travelogues, memoirs, novels, sermons, and treatises, among others.
Gen Ed: LA, BN, GL.
Grading status: Letter grade.

RELI 481. Religion, Fundamentalism, and Nationalism. 3 Credits.
An exploration of explosive combinations of religion and politics in the Iranian revolution, the Palestinian movement, Hindu nationalism in India, and Christian fundamentalism in America.
Gen Ed: SS, BN, GL.
Grading status: Letter grade
Same as: PWAD 481.

RELI 482. Sex, Gender, and Religion in South Asia. 3 Credits.
This seminar draws on feminist and philosophical theory, including the works of Plato, Butler, and Foucualt, as well as postcolonial theory, to explore the categories of sex and gender in South Asian religions. We also analyze the moral cultivation of the self in relation to gender identity in South Asia.
Gen Ed: PH, BN.
Grading status: Letter grade
Same as: ASIA 482, WGST 482.

RELI 485. Gender and Sexuality in Islam. 3 Credits.
This course approaches constructions of gender and sexuality in Muslim societies in diverse historical and geographical contexts. It focuses on changing interpretations of gender roles and sexual norms. Themes include gender in Islamic law, sexual ethics, masculinity, homosexuality, marriage, and dress.
Gen Ed: BN, CI.
Grading status: Letter grade.

RELI 487. Mountains, Pilgrimage, and Sacred Places in Japan. 3 Credits.
This course explores the role that mountains and pilgrimage have played in Japanese cosmology and how they relate to methodology of studying place and space.
Gen Ed: BN, CI.
Grading status: Letter grade
Same as: ASIA 487.

RELI 488. Shinto in Japanese History. 3 Credits.
This course discusses the development of Shinto in Japanese history and covers themes such as myths, syncretism, sacred sites, iconography, nativism, religion and the state, and historiography.
Gen Ed: BN, CI, WB.
Grading status: Letter grade
Same as: ASIA 488.

RELI 489. Animals in Japanese Religion. 3 Credits.
Permission of the instructor. This course examines the cultural construction of animals in Japanese myth, folklore, and religion.
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: ASIA 489.

RELI 501. The History of the Bible in Modern Study. 3 Credits.
This course will examine how the modern historical-critical enterprise of biblical scholarship arose, out of what historical circumstances, for what purposes, and to what effect. What are its major aspects? How does it relate to other forms of academic and theological inquiry? How has this enterprise fared in recent times?
Gen Ed: BN, WB.
Grading status: Letter grade.

RELI 502. Myths and Epics of the Ancient Near East. 3 Credits.
An examination of Babylonian, Canaanite, Egyptian, Hittite, and Sumerian texts from the prebiblical era, focusing on representative myths, epics, sagas, songs, proverbs, prophecies, and hymns. Honors version available
Gen Ed: LA, WB.
Grading status: Letter grade
Same as: FOLK 502.

RELI 502H. Myths and Epics of the Ancient Near East. 3 Credits.
An examination of Babylonian, Canaanite, Egyptian, Hittite, and Sumerian texts from the prebiblical era, focusing on representative myths, epics, sagas, songs, proverbs, prophecies, and hymns.
Gen Ed: LA, WB.
Grading status: Letter grade
Same as: FOLK 502H.

RELI 503. Exploring the Dead Sea Scrolls. 3 Credits.
A comprehensive introduction to the Dead Sea Scrolls and the different Jewish groups connected with them. Honors version available
Grading status: Letter grade
Same as: JWST 503.

RELI 503H. Exploring the Dead Sea Scrolls. 3 Credits.
A comprehensive introduction to the Dead Sea Scrolls and the different Jewish groups connected with them.
Grading status: Letter grade
Same as: JWST 503H.

RELI 504. Readings in Hebrew Bible. 3 Credits.
This course will examine a major corpus of the Hebrew Bible with attention to the full range of historical-critical issues. Attention will be paid as well to early forms of biblical interpretation and their use in the religious life of subsequent communities.
Gen Ed: BN, WB.
Grading status: Letter grade.

RELI 512. Ancient Synagogues. 3 Credits.
This is a course on ancient synagogues in Palestine and the Diaspora from the Second Temple period to the seventh century CE.
Requisites: Prerequisite, RELI 110; permission of the instructor for students lacking the prerequisite.
Gen Ed: VP, BN, WB.
Grading status: Letter grade
Same as: CLAR 512, JWST 512.

RELI 514. Judaism and the Search for Christian Origins. 3 Credits.
Although the origins of Christianity clearly lie in Judaism--the religious framework inherited by Jesus and his disciples--scholars disagree over how and when the two traditions diverged. This course explores critical issues in the conceptualization of this parting, including the theoretical difficulty of distinguishing religion from ethnicity in a premodern context, competing ways of analyzing intermediate groups ("Jewish Christianities"), and the methodological and ethical problems of 19th-20th century scholarship in this area (e.g., Protestant bias, anti-Semitism).
Gen Ed: WB.
Grading status: Letter grade.

RELI 515. Cultural History of New Testament Texts. 3 Credits.
This course traces the "lives" of individual New Testament texts to illuminate the shifting interests of Christians through different periods. It takes its departure from the idea that texts and the meanings attached to them are "symptoms of culture," implicitly encoding the anxieties and self-representations of the communities that produce them. In the hands of their authors and readers, biblical texts have served as sites for synthesizing tradition, negotiating difference, and constructing identity. Rotating topics.
Gen Ed: LA, WB.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

RELI 522. 19th-Century Critiques of Religion. 3 Credits.
Permission of the instructor. An exploration of influential 19th-century critiques of religion, including texts by such thinkers as Feuerbach, Marx, Kierkegaard, Nietzsche, Stanton, Douglass, and Freud.
Gen Ed: PH, NA.
Grading status: Letter grade.

RELI 524. Ethnographic Approaches to Contemporary Religion. 3 Credits.
Critical exploration of exemplary contemporary ethnographies of religion focusing on the ways that ethnographic methods and writing styles shape knowledge of religious and cultural life in various traditions and parts of the world. Topics considered include field work, culture, ethics, and the challenges of interpreting and representing religious experience.
Gen Ed: SS, CI.
Grading status: Letter grade.

RELI 525. Seminar in Religion and Literature. 3 Credits.
Seminar topic varies.
Grading status: Letter grade.

RELI 527. Religious Metaphor and Symbol. 3 Credits.
This course explores the myriad and complex issues related to the function of metaphor and symbol in religious language.
Gen Ed: PH, CI.
Grading status: Letter grade.

RELI 528. Rituals and Rhetorics of Religion. 3 Credits.
An examination of ritual, allegory, and symbol as modes of religious expression in cultic and literary contexts.
Grading status: Letter grade.

RELI 530. Genealogies of Religion. 3 Credits.
This seminar explores the historical development of "religion" as a concept and object of academic scholarship through the critical study of key texts and foundational debates about religion in Western thought.
Gen Ed: PH, NA.
Grading status: Letter grade.

RELI 540. Mormonism and the American Experience. 3 Credits.
Exploration of the history, beliefs, and practices of Mormons. Will include visits to Latter-Day Saints services, guest speakers, and discussion of race and gender in the contemporary church.
Requisites: Prerequisite, RELI 140; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

RELI 541. Evangelicalism from a Global Perspective. 3 Credits.
The course will examine the evangelical tradition from a global perspective, exploring the tradition from its early rise in Europe to its impact on the Americas, Africa, and Asia. Honors version available
Gen Ed: GL.
Grading status: Letter grade.

RELI 541H. Evangelicalism from a Global Perspective. 3 Credits.
The course will examine the evangelical tradition from a global perspective, exploring the tradition from its early rise in Europe to its impact on the Americas, Africa, and Asia.
Gen Ed: GL.
Grading status: Letter grade.

RELI 542. Religion and the Counterculture. 3 Credits.
The course examines the interaction between the values and messages of the counterculture and religious groups, ideas, and practices during the Vietnam War era. It also investigates the impact of countercultural norms and styles on the current American religious scene. Honors version available
Gen Ed: US.
Grading status: Letter grade.

RELI 542H. Religion and the Counterculture. 3 Credits.
The course examines the interaction between the values and messages of the counterculture and religious groups, ideas, and practices during the Vietnam War era. It also investigates the impact of countercultural norms and styles on the current American religious scene.
Gen Ed: US.
Grading status: Letter grade.

RELI 565. Medieval Jews and the Bible. 3 Credits.
This course explores the Jewish interpretation of the Bible, focusing on important commentaries from influential medieval Ashkenazi and Sephardic thinkers.
Gen Ed: HS, WB.
Grading status: Letter grade.

RELI 566. Islamic and Jewish Legal Literature. 3 Credits.
This course explores many aspects of the Halakhah, the Jewish traditional legal system, focusing on issues such as rituals, holidays, religious obligations and prohibitions, and laws regulating sexual activity.
Gen Ed: PH, WB.
Grading status: Letter grade.

RELI 569. Interfaith Marriages and Intimacy in World Religions. 3 Credits.
This seminar explores the topic of intimate relations between people who consider themselves, or are considered by others, to be part of different religious groups. We will explore cases in which such relations achieve the social sanction of marriage and cases in which the relations are of a more temporary nature.
Grading status: Letter grade.

RELI 574. Chinese World Views. 3 Credits.
Explores the indigenous Chinese sciences and the cosmological ideas that informed them. Topics include astronomy, divination, medicine, fengshui, and political and literary theory. Chinese sources in translation are emphasized.
Gen Ed: SS, BN.
Grading status: Letter grade
Same as: ANTH 574, ASIA 574.

RELI 580. African American Islam. 3 Credits.
An historical examination of African American Islam in the United States. Explores the intellectual, cultural, social, and political roots of black Islam in addition to its diverse doctrinal, ritual, and institutional manifestations.
Gen Ed: HS, GL, NA.
Grading status: Letter grade.

RELI 581. Sufism. 3 Credits.
Permission of the instructor. A survey of Islamic mysticism, its sources in the Qur'an and the Prophet Muhammad, and its literary, cultural, and social deployment in Arab, Persian, Indic, and Turkish regions.
Gen Ed: BN, WB.
Grading status: Letter grade
Same as: ASIA 581.

RELI 582. Islam and Islamic Art in South Asia. 3 Credits.
A survey of the formation of Islamic traditions in the subcontinent from the eighth century to the present, with emphasis on religion and politics, the role of Sufism, types of popular religion, and questions of Islamic identity.
Gen Ed: HS, BN, WB.
Grading status: Letter grade
Same as: ASIA 582.

RELI 583. Religion and Culture in Iran, 1500-Present. 3 Credits.
Iran from the rise of the Safavid empire to the Islamic Republic. Topics include Shi'ism, politics, intellectual and sectarian movements, encounters with colonialism, art and architecture, music, literature.
Gen Ed: HS, BN, WB.
Grading status: Letter grade
Same as: ASIA 583.

RELI 584. The Qur'an as Literature. 3 Credits.
A nontheological approach to the Qur'an as a literary text, emphasizing its history, form, style, and interpretation.
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: ASIA 584.

RELI 585. Religion and Culture of Turkey. 3 Credits.
This course will cover the history of Turkey from the Byzantine period until contemporary times. Key aspects of Turkish culture (architecture, music, poetry to arts) will be covered.
Gen Ed: BN, GL.
Grading status: Letter grade.

RELI 586. Women and Gender in Japanese Religions. 3 Credits.
This seminar explores the roles of women in the religions of Japan (including Buddhism, Shinto, folk religions, pilgrimage, new religions movements, and new spirituality culture) from goddesses, shamans, nuns, and pilgrims to demons, temptresses, and lesser human beings. The course traces these themes across Japanese socioeconomic and religious history.
Gen Ed: SS, BN, CI.
Grading status: Letter grade.

RELI 590. Topics in the Study of Religion. 3 Credits.
Permission of the instructor. Subject matter will vary with instructor but will always be focused on a particular problem or issue.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

RELI 592. Religious Conflict and Literature in India. 3 Credits.
Historical causes of violence between Hindus and Muslims in modern India. Short stories, poetry, and novels in translation are used to explore how conflicts over religious sites, religious conversion, image worship, and language contributed to a sense of conflicting religious identity.
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: HNUR 592.

RELI 602. What Is Scripture? Formations of the Hebrew Bible/Old Testament Canon. 3 Credits.
The course traces the past and continued canonical processes that define what the Hebrew Bible/Old Testament has been and is today, with a focus on the history of biblical interpretation.
Gen Ed: LA, WB.
Grading status: Letter grade
Same as: JWST 602.

RELI 603. The Bible and Its Translation. 3 Credits.
This course explores the translation of the Hebrew Bible in the West, with a view toward identifying religious and ideological trends.
Gen Ed: PH, WB.
Grading status: Letter grade.

RELI 607. Problems in Early Christian Literature and History. 3 Credits.
Honors version available
Requisites: Prerequisite, RELI 104, 207, 208, 209, 217 or 413; permission of the instructor for students lacking the prerequisite.
Gen Ed: NA, WB.
Grading status: Letter grade.

RELI 607H. Problems in Early Christian Literature and History. 3 Credits.
Prerequisite, RELI 104, 207, 208, 209, 217 or 413; permission of the instructor for students lacking the prerequisite.
Gen Ed: NA, WB.
Grading status: Letter grade.

RELI 608. The Messiah and the Apocalypse. 3 Credits.
Ideas concerning the Messiah and the end of the world held by Jews, Christians, and Muslims. Emphasis on the beginning of the Christian era.
Grading status: Letter grade.

RELI 609. Christianity and Greco-Roman Culture. 3 Credits.
The seminar surveys the development of Christianity in the Roman empire and examines a variety of attitudes adopted by early Christians toward Greco-Roman philosophy, religion, education, and literature.
Requisites: Prerequisite, RELI 104, 209, or 217; permission of the instructor for students lacking the prerequisite.
Gen Ed: PH, WB.
Grading status: Letter grade.

RELI 610. Readings in the Apostolic Fathers. 3 Credits.
Reading of the Apostolic Fathers. Students must have completed two courses in New Testament/Early Christianity and two years of Greek.
Grading status: Letter grade.

RELI 614. The Cult of Saints: Narratives, Materialities, Practices. 3 Credits.
By late antiquity, the cult of martyrs and other saints had become "so popular among all levels of Christians, rich and poor, cleric and layperson, rustic and urban dweller, monastic and spouse," that it represented a "rudimentary framework for Christianity" (Limberis 2011). This course traces the origins and development of the cult, conceptualizing it as a network of discourses, practices, and representations. It also explores the cult's impact on neighboring, non-Christian cultures.
Gen Ed: HS.
Grading status: Letter grade.

RELI 617. Death and Afterlife in the Ancient World. 3 Credits.
Examinations of practices and discourses pertaining to death and the afterlife in the ancient civilizations of Near East, Greece, and Rome.
Gen Ed: PH, WB.
Grading status: Letter grade.

RELI 620. Feminism and Religion. 3 Credits.
This course introduces students to the rich and multi-faceted debates within and about feminism and religion. Through the cultivation of careful and critical reading practice of primary texts by religious feminists and their secular critics, the course enables students to recognize the patterns and arguments of historical and contemporary debates within and across religious traditions and communities, while continuously tracing the ethical commitments and underlying values of feminist scholars and activists.
Gen Ed: PH, CI.
Grading status: Letter grade.

RELI 662. Advanced Seminar in Contemporary Catholicism. 3 Credits.
This advanced seminar is for undergraduate and graduate students who have at least a basic knowledge about Catholicism. The range of topics to be discussed is open and will depend on students' interests and suggestions.
Gen Ed: HS, NA.
Grading status: Letter grade.

RELI 665. Body and Suffering in Christian Mysticism. 3 Credits.
Permission of the instructor for nonmajors. Medieval Christians consistently focused on the suffering body as a means of reflecting on Christ's sacrifice. This course considers how medical theories of cognition, gender, and pain influenced the potential role of the body in medieval mystical experience.
Gen Ed: NA, WB.
Grading status: Letter grade
Same as: WGST 664.

RELI 668. Religion and the Spanish Inquisition: Abrahamic Traditions, Indigenous Religions, and Empire. 3 Credits.
Permission of the instructor for nonmajors. This course on the "Atlantic World" studies Muslims, Christians, and Jews in the medieval Iberian kingdoms, then the religious "other" in the colonial expansion to Mexico, Peru, and the Philippines, by deploying theories concerning race, gender, sexuality, and postcoloniality.
Gen Ed: GL, WB.
Grading status: Letter grade.

RELI 681. Readings in Islamicate Literatures. 3 Credits.
Permission of the instructor. Study of selected religious, literary, and historical texts in Arabic, Persian, or Urdu.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: ARAB 681, ASIA 681.

RELI 688. Observation and Interpretation of Religious Action. 3 Credits.
Permission of the instructor. Exercises (including field work) in learning to read the primary modes of public action in religious traditions, e.g., sermons, testimonies, rituals, and prayers.
Gen Ed: SS, EE- Mentored Research.
Grading status: Letter grade
Same as: ANTH 688, FOLK 688.

RELI 691H. Honors in Religious Studies. 3 Credits.
Permission of the director of undergraduate studies. Required of all students reading for honors in religious studies.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

RELI 692H. Honors in Religious Studies. 3 Credits.
Permission of the director of undergraduate studies. Required of all students reading for honors in religious studies.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

RELI 696. Independent Study. 3 Credits.
Advanced undergraduate or graduate standing and permission of the instructor. Subject matter should be arranged with a specific instructor.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

RELI 697. Capstone: Undergraduate Seminar. 3 Credits.
Majors only. Concentrating on a different theme each year, this departmental seminar introduces the different areas and approaches in religious studies.
Gen Ed: CI.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

Graduate-level Courses

RELI 700. Theory and Method in the Study of Religion. 3 Credits.
Graduate standing in religious studies or permission of the instructor. A basic problems and methods course required of all graduate students in religious studies.
Grading status: Letter grade.

RELI 702. Religion and Literature of Israel. 3 Credits.
A study of the religious traditions in ancient Israelite literature from the 12th through the second centuries BCE.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

RELI 703. Critical Approaches to the Study of the Hebrew Bible and its History of Interpretation. 3 Credits.
Exploration of current critical approaches to the study of the Hebrew Bible, including those oriented toward a study of its interpretive history.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 1 total completions.
Grading status: Letter grade.

RELI 704. Readings in Religions of the Ancient Near East. 3 Credits.
Focusing on the Mediterranean religions before Alexander, the course consists of readings of original documents in translation, illustrating theology and cult, as well as on the major history of religions interpretations.
Grading status: Letter grade.

RELI 707. Early Christian History and Literature. 3 Credits.
Permission of the instructor. A critical study of the history and literature of early Christianity from Paul to Irenaeus, with texts to be read in the original languages.
Grading status: Letter grade.

RELI 712. Early Jewish History and Literature. 3 Credits.
Permission of the instructor. An examination of the main varieties of pre-rabbinic Judaism: Hellenistic Judaism, apocalyptic Judaism, and the Judaism of the Dead Sea Scrolls.
Grading status: Letter grade.

RELI 718. Readings in Greco-Roman Religion. 3 Credits.
Permission of the instructor. Opportunity for reading of ancient documents representing the more important religious trends of the Greco-Roman world.
Grading status: Letter grade.

RELI 720. Critical and Comparative Lineages in Religion and Culture. 3 Credits.
Exploration of intellectual lineages shaping the contemporary study of religion and culture.
Grading status: Letter grade.

RELI 721. Theories of Religion and Culture. 3 Credits.
Permission of the instructor. Studies in early modern, Enlightenment and Romantic political, philosophical, and literary texts.
Grading status: Letter grade.

RELI 723. Critical Approaches to Religion and Culture. 3 Credits.
Graduate standing in religious studies or permission of the instructor. Exploration of various forms of contemporary critical thought (including gender theory, critical race theory, and postcolonial studies) in order to assess the value of these critical tools for the study of religion.
Grading status: Letter grade.

RELI 724. Ethnographic Research Methods: Ethnography of Religion and Religious Formations. 3 Credits.
This course engages the practices, politics, ethics, and epistemology of ethnography as a technique of data production, analysis, and representation. While we will privilege issues and themes related to the study of religion, the course offers a broad, multidisciplinary approach to the construction and execution of ethnographic research.
Grading status: Letter grade.

RELI 729. Religion and Modernity. 3 Credits.
Graduate standing in religious studies or permission of the instructor. This course examines the relationships between religion and modernity, both as conceptual categories and through ethnographic studies of religion and/in modern life.
Grading status: Letter grade.

RELI 734. Studies in the Rhetoric of Images. 3 Credits.
Permission of the instructor. Selected readings on image production, exhibition, and interpretation, with consideration of different ritual and cultic settings.
Grading status: Letter grade.

RELI 735. Critical Works in Religion and Literature. 3 Credits.
Permission of the instructor. Textual analysis of several theoretical and literary works dealing with selected problems in religion and literature.
Grading status: Letter grade.

RELI 740. Approaches to the Study of Religion in the Americas. 3 Credits.
Explores methods, theories, and genealogies that shape the study of religion in the Americas. The course introduces students to key historiographical contexts and theoretical debates that will help them situate the field within the discipline of Religious Studies.
Grading status: Letter grade.

RELI 741. Themes in African American Religious History. 3 Credits.
Graduate standing in religious studies or permission of the instructor. A historical and thematic survey of the religions of African Americans from the precolonial era to the present.
Grading status: Letter grade.

RELI 742. Religion and Literature in America. 3 Credits.
Graduate standing in religious studies or permission of the instructor. A study of the religious tradition in American literature from the Puritan period to the present.
Grading status: Letter grade.

RELI 743. Current Trends in American Judaism. 3 Credits.
The course aims at examining the current developments in American Judaism: cultural, spiritual, liturgical, as well as social and institutional.
Grading status: Letter grade.

RELI 744. Religion in Colonial Americas. 3 Credits.
A study of religion in the Americas from pre-contact indigenous communities to 19th century wars of independence. The course examines cases of migration, encounter, rebellion, and institutionalization across the continent and introduces theoretical debates about colonialism, hybridity, revival, and revolution.
Grading status: Letter grade.

RELI 745. Religion in Postcolonial Americas. 3 Credits.
A study of religion in the Americas through the lens of post-colonialism understood as a concept, a method, and an historical period. This course introduces students to theoretical debates about power, culture, history, and representation to better understand the present and future of the field.
Grading status: Letter grade.

RELI 746. The Christian-Jewish Encounter in America. 3 Credits.
Course examines the Christian-Jewish encounter in America from the 17th century to the present. Analyzes both theological and social interactions.
Grading status: Letter grade.

RELI 760. Approaches to Medieval and Early Modern Studies. 3 Credits.
Graduate standing in religious studies or permission of the instructor. An introduction to the problems and methods in the study of medieval and early modern religion in the West.
Grading status: Letter grade.

RELI 780. Approaches to Islamic Studies. 3 Credits.
An introduction to the academic study of Islam and Muslims, including the history of the field, theory and method in Islamic studies, pedagogy, and important subfields. Gateway course.
Grading status: Letter grade.

RELI 782. Islam and Reform. 3 Credits.
Exploration of reformist intellectual movements in modern Muslim societies, paying close attention to the case of post-revolutionary Iran and examining the compatibility of Islam and human rights, women's rights, democracy, and fresh hermeneutical approaches to scriptures.
Grading status: Letter grade.

RELI 785. Critical Genealogies of Middle East Studies. 3 Credits.
Permission of the instructor. This seminar is the core course for the graduate certificate in Middle East studies. It is an introduction to critical issues in the study of the Middle East, focusing on classic works of the humanities and social sciences.
Grading status: Letter grade.

RELI 801. Seminar in Biblical Studies. 3 Credits.
Topics vary; consult the department.
Grading status: Letter grade.

RELI 803. Advanced Hebrew Readings. 3 Credits.
Required preparation, proficiency in Hebrew. Primary readings in portions of the Hebrew Bible (e.g., Pentateuch, Deuteronomistic History, prophetic texts, Psalms) or in non-biblical texts (pre-exilic inscriptions, Dead Sea Scrolls) with attention to issues of interpretation.
Grading status: Letter grade.

RELI 804. Ancient Israelite Religion. 3 Credits.
Explores the field of ancient Israelite religion as it has been conceived in contemporary scholarship. We will review the relevant textual and archaeological data, acquaint ourselves with current debates, and examine the different approaches that scholars have adopted to the problem of ancient Israelite religion.
Grading status: Letter grade.

RELI 805. Historical Hebrew and Semitic Linguistics. 3 Credits.
An introduction to the historical development of ancient Hebrew within a comparative Semitic framework, with attention to the full range of relevant textual evidence (e.g., biblical Hebrew, pre-exilic inscriptions, Dead Sea Scrolls).
Grading status: Letter grade.

RELI 807. Hellenistic Religious Texts in Greek. 3 Credits.
Studies in Greek texts drawn from early Christianity, Judaism, and other religions of the Greco-Roman World.
Grading status: Letter grade.

RELI 808. The Apostolic Fathers. 3 Credits.
Required preparation, proficiency in Greek. Permission of the instructor. A study of selected works of the Apostolic Fathers, including Barnabas, Ignatius, and Polycarp.
Grading status: Letter grade.

RELI 809. Textual Criticism of the Greek Bible. 3 Credits.
Required preparation, proficiency in Greek. Permission of the instructor. Reconstruction; application of text-critical principles.
Grading status: Letter grade.

RELI 810. Readings in Early Jewish and Christian Apocalyptic. 3 Credits.
Permission of the instructor. Readings from apocalyptic texts in the original languages.
Grading status: Letter grade.

RELI 812. Diaspora Judaism. 3 Credits.
Permission of the instructor for undergraduates. Seminar examines the evidence for the ancient Jewish communities of Egypt, Rome, Asia Minor, and Mesopotamia.
Grading status: Letter grade
Same as: CLAR 812.

RELI 813. Readings in Talmud. 3 Credits.
Permission of the instructor. An introduction to the study of the Babylonian Talmud in the original Hebrew and Aramaic, with the traditional commentaries. The emphasis is on understanding Talmudic logic.
Grading status: Letter grade.

RELI 814. Problems in Rabbinic Historiography. 3 Credits.
Examination of the methodological problems of using rabbinic materials as sources for the history of Judaism in the period after 70 CE.
Requisites: Prerequisite, RELI 712; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

RELI 817. Ancient Rhetoric and Early Christianity. 3 Credits.
Permission of the instructor. Survey of the development of rhetorical theory and practice through the Hellenistic and Roman Period. Explores the connection between rhetorical tradition and early Christian literature.
Grading status: Letter grade.

RELI 818. The Gnostic Scriptures. 3 Credits.
Close reading and interpretation of ancient Gnostic texts found near Nag Hammadi in Egypt.
Requisites: Prerequisite, RELI 413; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

RELI 819. Ancient Philosophy and Early Christianity. 3 Credits.
Required preparation, proficiency in Greek and/or Latin. Survey of the Hellenistic schools of philosophy and their impact on early Christian theories of the universe, ethics, cultural history, and salvation.
Grading status: Letter grade.

RELI 821. Seminar in Religion and Culture. 3 Credits.
Permission of the instructor. Topics vary; consult the department.
Grading status: Letter grade.

RELI 823. Postcolonial Approaches to the Study of Religion. 3 Credits.
Permission of the instructor. An examination of major themes in contemporary postcolonial thought, and the application of this work to the study of religion.
Grading status: Letter grade.

RELI 835. Space, Place, and Religion. 3 Credits.
This interdisciplinary graduate seminar focuses on religion, space, and place in the United States.
Grading status: Letter grade.

RELI 838. Topics in Religion and Law. 3 Credits.
This course examines selected themes in legal and social theory relating to the position of religion in contemporary American society.
Grading status: Letter grade.

RELI 840. Seminar in American Religion. 3 Credits.
Topics vary. May be repeated for credit.
Grading status: Letter grade.

RELI 841. Religion and Social Issues in America. 3 Credits.
Historical analysis of the relationship between religious developments and social issues in America. Topics may include economics, politics, and social reform.
Grading status: Letter grade.

RELI 842. Religion and Cultural Contact in America. 3 Credits.
Examination of religion in America through instances of intercultural contact. Topics vary.
Grading status: Letter grade.

RELI 843. Roman Catholicism in America. 3 Credits.
A seminar on Roman Catholicism in the United States that also considers developments elsewhere in the Western hemisphere. Focus is on ritual practice and visual culture.
Grading status: Letter grade.

RELI 866. Medieval Religious Texts. 3 Credits.
Permission of the instructor. Selected texts which illumine significant aspects of medieval religious culture are read in the original languages.
Grading status: Letter grade.

RELI 867. Texts of the Catholic and Protestant Reformations. 3 Credits.
Permission of the instructor. Selected texts which illumine significant aspects of the Catholic and Protestant Reformations are read in the original languages.
Grading status: Letter grade.

RELI 870. Methods and Topics in the Study of Western Religious Traditions. 3 Credits.
Permission of the instructor. Exploration of one enduring issue in the history of the Western Christian tradition. The instructor selects several case studies that illustrate both the topic and the developments within traditions.
Grading status: Letter grade.

RELI 881. Islamic Thought. 3 Credits.
Required preparation, proficiency in Arabic and/or Persian. Advanced study of major Islamic thinkers and topics, based on original language texts and modern scholarly interpretations.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

RELI 885. The Study of Asian Religions and the Construction of the Field. 3 Credits.
Introduction to major approaches and methodological questions in the study of Asian religions. This course serves as a gateway course.
Grading status: Letter grade.

RELI 890. Topics in the Study of Religion. 3-9 Credits.
Graduate standing in religious studies or permission of the instructor. Topics vary.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

RELI 891. Topics in Islamic Studies. 3 Credits.
Graduate seminar on critical issues in Islamic studies. Topics vary.
Grading status: Letter grade.

RELI 900. Readings and Research. 3-9 Credits.
Permission of the instructor.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

RELI 910. Religious Studies Professional Development Seminar. 1 Credit.
This course seeks to prepare students for professional academic careers in Religious Studies and cognate disciplines by focusing on the skills and practices associated with success in research, publishing, and the job market.
Grading status: Letter grade.

RELI 913. Practices of Professional Development. 3 Credits.
This course prepares doctoral students for careers in Religious Studies and cognate disciplines by focusing on the skills and practices associated with success in research, publishing and the job market. Focuses on skills development and strategies including conceptualizing and cultivating a professional persona, planning and presenting research, publishing, alt-ac career options, the academic job search, and professional ethics. Includes practical work as well as discussion.
Grading status: Letter grade.

RELI 990. Preliminary Preparation. 1-15 Credits.

RELI 993. Master's Research and Thesis. 3 Credits.

RELI 994. Doctoral Research and Dissertation. 3 Credits.

JWST

Advanced Undergraduate and Graduate-level Courses

JWST 412. From Communism to Capitalism: 20th- and 21st-Century Polish Literature and Culture. 3 Credits.
An overview of the literary and cultural movements in 20th and 21st century Poland as they relate to major historical changes of the century (World War I and World War II, Communism, Post-communism, accession to the European Union). All readings and discussions in English; readings available in Polish for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: PLSH 412.

JWST 420. Post-Holocaust Ethics and Theology. 3 Credits.
This course examines the challenges posed to ethics and theology by the Holocaust. We will address philosophical and moral issues such as the problem of evil, divine omniscience, omnipotence, suffering, theodicy, representation, testimony, and an ethics of memory. Honors version available
Gen Ed: PH, GL.
Grading status: Letter grade
Same as: RELI 420.

JWST 420H. Post-Holocaust Ethics and Theology. 3 Credits.
This course examines the challenges posed to ethics and theology by the Holocaust. We will address philosophical and moral issues such as the problem of evil, divine omniscience, omnipotence, suffering, theodicy, representation, testimony, and an ethics of memory.
Gen Ed: PH, GL.
Grading status: Letter grade
Same as: RELI 420H.

JWST 425. Beyond Hostilities: Israeli-Palestinian Exchanges and Partnerships in Film, Literature, and Music. 3 Credits.
Focuses on the various collaborations, exchanges, and mutual enrichment between Israelis and Palestinians in the realm of culture, particularly literature and cinema. These connections include language (Israeli Jewish authors writing in Arabic and Palestinian writers who choose Hebrew as their language of expression), collaborating in filmmaking, and joint educational initiatives.
Gen Ed: BN, GL.
Grading status: Letter grade
Same as: ASIA 425, PWAD 425.

JWST 436. Language, Exile, and Homeland in Zionist Thought and Practice. 3 Credits.
Employing Zionist and post- and anti-Zionist documents, treatises, and mostly literary and cinematic texts, this class will focus on the relations between language, Jewish-Israeli identity, and the notion of homeland. Previously offered as HEBR 436.
Gen Ed: BN, GL.
Grading status: Letter grade
Same as: ASIA 436.

JWST 444. Gender and Sexuality in Contemporary Judaism. 3 Credits.
The seminar examines the developments in gender roles and in sexuality in contemporary Judaism.
Gen Ed: CI, NA.
Grading status: Letter grade
Same as: RELI 444, WGST 448.

JWST 451. 1492: The Expulsion of the Jews from Spain. 3 Credits.
The largest and most prosperous Jewry of Europe lived in medieval Spain. The 1492 expulsion, driven by the Inquisition and Catholic monarchy, not only ended Spanish Jewish life but also forced a traumatic redefinition of Jewish identity. This course focuses on the causes and consequences of the expulsion of 1492.
Gen Ed: HS, WB.
Grading status: Letter grade
Same as: HIST 451.

JWST 464. Imagined Jews: Jewish Themes in Polish and Russian Literature. 3 Credits.
Explores the fictional representation of Jewish life in Russia and Poland by Russian, Polish, and Jewish authors from the 19th century to the present. Taught in English; some foreign language readings for qualified students.
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: SLAV 464.

JWST 465. Literature of Atrocity: The Gulag and the Holocaust in the Soviet Union and Eastern Europe. 3 Credits.
Historical contexts and connections through artistic representation of the Holocaust and Soviet terror in Eastern Europe and the USSR. Taught in English; some foreign language readings for qualified students.
Gen Ed: LA, BN, GL.
Grading status: Letter grade
Same as: GSLL 465, PWAD 465.

JWST 469. Coming to America: The Slavic Immigrant Experience in Literature. 3 Credits.
Fictional and autobiographical expressions of the Slavic and East European immigrant experience in the 20th century. Readings include Russian, Polish, Jewish, and Czech authors from early 1900s to present. Taught in English; some foreign language readings for qualified students.
Gen Ed: LA, GL.
Grading status: Letter grade
Same as: SLAV 469.

JWST 476. Borderlands: Religion and Ethnicity in Modern East Central Europe. 3 Credits.
The history of modern Eastern, East Central, and southeastern Europe has been shaped by the ethnic and religious diversity of the regions. This course examines experiences in the Russian, Habsburg, and Ottoman Empires and their successor states from the 19th century to the present day.
Gen Ed: HS, BN.
Grading status: Letter grade
Same as: HIST 476.

JWST 480. Russian-Soviet Jewish Culture: Lofty Dreams and Stark Realities. 3 Credits.
This course delves into the scintillating literary, visual, musical, and cinematic culture created by Jewish universalists seeking to build their new secular identity under the aegis of the Soviet Communist experiment in the aftermath of the 1917 Bolshevik coup. Surveys the works of Isaac Babel, Eduard Bagritsky, Marc Chagall, Sergey Eisenstein, Ilya Ehrenburg, Masha Gessen, Vasily Grossman, Osip Mandelshtam, and others. Taught in English; some readings in Russian for qualified students; films with English subtitles. Honors version available
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: RUSS 480.

JWST 480H. Russian-Soviet Jewish Culture: Lofty Dreams and Stark Realities. 3 Credits.
This course delves into the scintillating literary, visual, musical, and cinematic culture created by Jewish universalists seeking to build their new secular identity under the aegis of the Soviet Communist experiment in the aftermath of the 1917 Bolshevik coup. Surveys the works of Isaac Babel, Eduard Bagritsky, Marc Chagall, Sergey Eisenstein, Ilya Ehrenburg, Masha Gessen, Vasily Grossman, Osip Mandelshtam, and others. Taught in English; some readings in Russian for qualified students; films with English subtitles.
Gen Ed: LA, BN.
Grading status: Letter grade
Same as: RUSS 480H.

JWST 481. Jewish Belongings: Material Culture of the Jewish Experience. 3 Credits.
What makes an object "Jewish"? This seminar examines how we think about, animate, repurpose, and display "Jewish" objects in the public realm, cultural institutions, religious spaces, and the home. We consider how makers and users negotiate objects' various meanings within the domains of prayer, performance, entertainment, and exhibition. The class curates a final group exhibition of Jewish material culture based on original fieldwork.
Gen Ed: VP, EE- Field Work, US.
Grading status: Letter grade
Same as: FOLK 481.

JWST 485. From Fiddler on the Roof to the Holocaust: East European and Soviet Jewish History. 3 Credits.
Eastern Europe was one of the largest centers of Jewish civilization from premodern times to the Second World War, giving rise to important religious, cultural, and political developments in Jewish modernity. This course examines main developments of Jewish society from the late 18th century until the aftermath of the Holocaust.
Gen Ed: HS, BN.
Grading status: Letter grade
Same as: HIST 485.

JWST 486. Shalom Y'all: The Jewish Experience in the American South. 3 Credits.
This course explores ethnicity in the South and focuses on the history and culture of Jewish Southerners from their arrival in the Carolinas in the 17th century to the present day.
Gen Ed: HS, CI, US.
Grading status: Letter grade
Same as: AMST 486.

JWST 503. Exploring the Dead Sea Scrolls. 3 Credits.
A comprehensive introduction to the Dead Sea Scrolls and the different Jewish groups connected with them. Honors version available
Grading status: Letter grade
Same as: RELI 503.

JWST 503H. Exploring the Dead Sea Scrolls. 3 Credits.
A comprehensive introduction to the Dead Sea Scrolls and the different Jewish groups connected with them.
Grading status: Letter grade
Same as: RELI 503H.

JWST 512. Ancient Synagogues. 3 Credits.
This is a course on ancient synagogues in Palestine and the Diaspora from the Second Temple period to the seventh century CE.
Requisites: Prerequisite, RELI 110; permission of the instructor for students lacking the prerequisite.
Gen Ed: VP, BN, WB.
Grading status: Letter grade
Same as: RELI 512, CLAR 512.

JWST 602. What Is Scripture? Formations of the Hebrew Bible/Old Testament Canon. 3 Credits.
The course traces the past and continued canonical processes that define what the Hebrew Bible/Old Testament has been and is today, with a focus on the history of biblical interpretation.
Gen Ed: LA, WB.
Grading status: Letter grade
Same as: RELI 602.

JWST 697. Capstone Course: Themes and Methodologies in Jewish Studies. 3 Credits.
Required of majors in religious studies with a concentration in Jewish studies; graduate students may enroll. Concentrating on a different theme each year, the course offers intensive grounding in key areas of and approaches to Jewish studies. Combines exploration of broad topics with scholarly rigor and specificity.
Gen Ed: CI.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

DEPARTMENT OF ROMANCE STUDIES (GRAD)

Contact Information

Department of Romance Studies
Visit Program Website (http://romancestudies.unc.edu)

Ellen Welch, Chair

The Department of Romance Studies offers M.A. and Ph.D. degrees with concentrations in French and Francophone studies, Franco-Arab studies (M.A. only), Hispanic studies, and Italian studies. Students interested in the Franco-Arab studies concentration apply to the M.A.; all other students apply directly to the Ph.D. program. All students in the Ph.D. program may receive the M.A. degree en route after completing satisfactorily all of the second-year requirements.

The Department of Romance Studies also offers a dual graduate track in Hispanic linguistics (M.A. in linguistics and a Ph.D. in Romance studies) with the Department of Linguistics. For the duel track program, students will need to apply to both the Department of Romance Studies and the Department of Linguistics.

Research Facilities

The Walter Royal Davis Library's Spanish, French, and Italian collections rank in the top 20 in the nation. The Spanish and Spanish American collections are particularly strong in medieval, Golden Age/Colonial, and 19th- and 20th-century holdings. The French collection has similar strengths in the 17th, 18th, and 19th centuries and is enriched by the Charles Nodier and René Char materials. The Italian collection exhibits strength in the 19th century. These strengths are enhanced by extensive holdings in reference, specialized journals, and rare books. Among the latter are a notable gathering of 20th-century first editions of French writers, a distinguished Spanish drama collection of more than 26,000 plays (many of them pre-1830 *sueltas*), and the Flatow Collection of Latin American Cronistas, consisting of early imprints of the discovery and conquest of the New World.

For students applying to the doctoral program with the M.A. in hand, appropriate placement and course transfer will be determined on a case-by-case basis by the director of graduate studies in consultation with the graduate advisors. The department may transfer up to nine courses (27 credits) into the Ph.D. program. Students transferring a total of nine courses (27 credits) and the research paper (thesis substitute) may have the second-year qualifying exams waived.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

French

Hassan Melehy (64), Early Modern French and Comparative Literature, Contemporary Critical Theory, Film, Franco-American Literature
Ellen R. Welch (08), 17th- and 18th-Century French Literature and Culture, Theater and Performance Studies, Theater and Politics, Travel and Literature

Italian

Serenella Iovino (15), Italian Literature and Culture, Ecocriticism, Environmental Humanities, Mediterranean Studies, New Materialisms, Environmental Justice, and Land Art

Spanish

Lucia Binotti (47), Early Modern Cultural Studies, Sociohistorical Linguistics, Digital Humanities
Oswaldo Estrada (04), 20th- and 21st-Century Latin American Literature, Mexico and Peru, Border Narratives, Gender and Otherness, Aesthetics of Violence, Historical Memory
Rosa Perelmuter (37), Colonial Spanish American Literature; Cuban, Cuban-Jewish, and Cuban-American Literature and Culture

Associate Professors

Spanish

Emilio del Valle Escalante (05), 20th- and 21st-Century Latin America, Indigenous Literatures and Social Movements, Central American Literatures and Cultures, Cultural and Postcolonial Studies
Bruno Estigarribia (22), Spanish Syntax, Language Contact, Indigenous Languages (Especially Guarani), First Language Acquisition, Corpus Linguistics
Irene Gómez Castellano (13), 18th-Century Spanish Literature and Culture, Poetry and Visual Arts
Juan Carlos González Espitia (62), 19th-Century Spanish American Literature, Decadentism and Nation Building
Carmen Hsu (51), 16th- and 17th-Century Spanish Historiography and Literature, Humanism, National/Cultural Identity, Exchanges Between Catholic Iberia and Asia and Africa
Alicia Rivero (38), Contemporary Spanish American Literature, Contemporary Critical Theory, Gender Issues, Literature and Science, Intellectual History, Comparative Literature

Assistant Professors

French

Jessica Tanner (30), 19th-Century French Literature and Culture, Contemporary Critical Theory, Space and Place, Ecocriticism

Italian

Maggie Fritz-Morkin (44), Dante, Boccaccio, Petrarch, the History of Rhetoric, Urban Studies, Medicine and Literature

Portuguese

Carolina Sá-Carvalho (30), 19th- and 20th-Century Brazilian and Spanish American Literature and Photography, Modern Travel Cultures, Media Technologies, Visual Arts, Critical Theory

Spanish

Lamar Graham (25), Historical and Comparative Romance Linguistics (Particularly Within Ibero-Romance), Generative Syntax, Language Change, Sociolinguistic and Sociopragmatic Variation
Carolina Sá-Carvalho (30), 19th- and 20th-Century Brazilian and Spanish American Literature and Photography, Modern Travel Cultures, Media Technologies, Visual Arts, Critical Theory

Professors Emeriti

Cesáreo Bandera
Pablo Gil Casado
Dino Cervigni

Angel L. Cilveti
Yves de la Quérière
Dominique Fisher
I.R. Stirling Haig II
Antonio Illiano
Larry D. King
Federico Luisetti
Catherine A. Maley
Edward D. Montgomery
José Manuel Polo de Bernabé
Ennio Rao
Monica P. Rector
María A. Salgado
Carol Lynn Sherman

Catalan (CATA)

Advanced Undergraduate and Graduate-level Courses

CATA 401. Elementary Catalan. 3 Credits.
Introduction to Catalan language and culture. Designed for students who already have proficiency in another foreign language.
Grading status: Letter grade.

CATA 402. Intermediate Catalan. 3 Credits.
Continuation of Catalan 401 with more emphasis on reading authentic texts.
Grading status: Letter grade.

French (FREN)

Advanced Undergraduate and Graduate-level Courses

FREN 401. Beginning Accelerated French. 3 Credits.
Covers levels one and two of the basic language sequence in one semester. Designed for highly motivated undergraduate/graduate language learners, especially those who have experienced success with learning another language. Intensive approach to developing all skills but with an emphasis on speaking. Students may not receive credit for both FREN 401 and any of the following: FREN 101, 102, 105.
Gen Ed: FL.
Grading status: Letter grade.

FREN 402. Intermediate Accelerated French. 3 Credits.
A continuation of FREN 401. Covers levels three and four in one semester. Develops all skills, with increasing emphasis on reading, writing, and cultural analysis. Designed for highly motivated undergraduate/graduate language learners, especially those who have experienced success with learning another language. Prepares students for advanced courses. Students may not receive credit for both FREN 402 and any of the following: FREN 203 and 204.
Gen Ed: FL.
Grading status: Letter grade.

FREN 403. Advanced Composition. 3 Credits.
Review of advanced grammar. Exercises in translation from English into French of literary and critical materials. Free composition and training in the use of stylistic devices.
Requisites: Prerequisite, FREN 300 and one of the following: FREN 255, 260, or 262.
Grading status: Letter grade.

FREN 405. French for the Health Professions. 3 Credits.
Aimed at health care professionals in a variety of fields, this class is designed to help them practice, consolidate, and improve their language skills, while encouraging students to develop a fuller understanding of health care systems in French-speaking regions of the world and to compare conditions with those in the United States. This course does not fulfill the FL requirement and does not count for the French major or minor.
Grading status: Letter grade.

FREN 421. Old French. 3 Credits.
An introductory course designed to enable students to read medieval texts with rapidity and accuracy. Phonology, morphology, semantics, and syntax.
Grading status: Letter grade.

FREN 437. Literary and Cultural Theory in France. 3 Credits.
A study of structuralist and poststructuralist methods in poetics, semiotics, psychoanalysis, sociology, and philosophy.
Requisites: Prerequisites, FREN 300 and one of the following: FREN 255, 260, or 262.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 452. Muslim Women in France and the United States. 3 Credits.
This class will follow Muslim women's experiences and changing roles in France and the United States from the 1970s through today.
Gen Ed: GL.
Grading status: Letter grade.

FREN 489. 19th-Century Literature and Culture. 3 Credits.
Intensive study of a single major author of the romantic or postromantic period. The subject changes from year to year among writers in the different literary genres.
Requisites: Prerequisites, FREN 300 and one of the following: FREN 255, 260, or 262.
Grading status: Letter grade.

FREN 490. Special Topics in French and Francophone Studies. 3 Credits.
Examines selected topics in French and francophone studies. Content varies by semester and instructor.
Requisites: Prerequisites, FREN 300 and one of the following: FREN 255, 260, or 262.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 500. Research Methods in French and European Studies. 3 Credits.
Provides training in research methodology either for a B.A. honors or M.A. thesis topic related to contemporary European studies. Students will learn to conceptualize an original research project and to identify and assess the current intellectual debates in their chosen areas of research.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

FREN 504. Cultural Wars: French/United States Perspectives. 3 Credits.
This course examines the limits of universalism in today's "multicultural" France and how the European Union affects French universalism and French resistance to identity politics.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 505. African Francophone Cinema. 3 Credits.
Study of the production of films from francophone sub-Saharan and North African communities.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Gen Ed: VP, BN.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 513. 20th- and 21st-Century French Literature and Culture. 3 Credits.
Studies of a single author, a literary movement, or an aesthetic movement from the avant-garde to postmodernism.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 515. Social Networks: Technology and Community in Modern France. 3 Credits.
Exploration of the interaction between technology and sociability in 19th- through 21st-century French literature, with an emphasis on questions of modernization, industrialization, colonization, globalization, subjectivity, and ethics. Taught in French.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Gen Ed: PH, NA.
Grading status: Letter grade.

FREN 522. French Middle Ages. 3 Credits.
Readings in a variety of medieval texts in light of contemporary literary theory.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 530. Postmodernisms. 3 Credits.
Theory, literary texts, films, and cultural phenomena associated with postmodernism and the interaction of art, philosophy, film, literature, and popular culture.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 554. Writing the Mediterranean. 3 Credits.
Explores early modern literary representations of the Mediterranean as a space of cross-cultural encounter, exchange, rivalry, and negotiation.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Gen Ed: LA, WB.
Grading status: Letter grade.

FREN 555. Crossing Gazes: Multidirectional and Conflicting Memories of Algeria. 3 Credits.
Focus on contemporary fictions and films, and the writing of history from both the French (French-Algerian or "Pieds noirs," French draftees) and the Algerian sides.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Gen Ed: BN, GL.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 561. French Renaissance Literature and Culture. 3 Credits.
Recommended preparation, FREN 370. Interdisciplinary seminar on a cultural topic or a theme through readings in literary and nonliterary texts.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 562. Poetry of the French Renaissance. 3 Credits.
Recommended preparation, FREN 370. Major currents in French Renaissance poetry: the Rhétoriqueurs, the break with the Middle Ages, Italian influences, the formation of the French Renaissance sonnet, poetry and gender, poetry and politics, the Pléiade. Clément Marot, Maurice Scève, Louise Labé, Olivier de Magny, Pierre de Ronsard, Joachim Du Bellay.
Grading status: Letter grade.

FREN 563. Studies in the Anglo-French Renaissance. 3 Credits.
Recommended preparation, FREN 370 (for students taking the course for French credit), or one course from ENGL 225 to ENGL 229, or one course from CMPL 120 to CMPL 124. Study of French-English literary relations in the Renaissance, focusing on literary adaptation and appropriation, poetics, political writing, and related areas. Conducted in English; students may do written work in French for major or minor credit.
Gen Ed: LA, WB.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade
Same as: CMPL 563.

FREN 564. History of the French Language. 3 Credits.
The phonology, morphology, and syntax of French are traced from the Latin foundation to the present. Lectures, readings, discussions, and textual analysis.
Requisites: Prerequisites, FREN 300, and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: LING 564.

FREN 565. French Phonetics and Phonology. 3 Credits.
Study of the sound system and prosody features of standard French, emphasizing practical application in a variety of oral activities. Requires learning linguistic terminology and the phonetic alphabet
Requisites: Prerequisite, FREN 255, 260, or 262; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: LING 565.

FREN 566. Structure of Modern French. 3 Credits.
Introduction to phonology, morphology, and syntax of modern standard French. Application of modern linguistic theory to the teaching of French.
Requisites: Prerequisites, FREN 300, and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: LING 566.

FREN 575. 20th- and 21st-Century Francophone Literature and the Visual Arts. 3 Credits.
Evolution of francophone literature from a literary and cultural perspective (Maghreb, Africa, Caribbean Islands, and Canada).
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 576. Francophone Cultural Studies. 3 Credits.
An examination of national and transnational identity within European culture and recent economic and ethnologic changes in Western Europe and France.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 583. 18th-Century French Literature and Culture. 3 Credits.
Intensive study of a major 18th-century writer.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the requisites.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 585. Libertinism and Sexuality. 3 Credits.
In-depth study of the genealogy of the concept of libertinage as a philosophical discourse and aesthetic manifestation.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the requisites.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 586. Studies in French Cinema. 3 Credits.
Recommended preparation for French majors and minors, FREN 300 and one of FREN 255, 260, or 262; for all other students, CMPL 143. Themes, periods, and movements in the history of French cinema. The course may cover early cinema, silent film, poetic realism of the 1930s, postwar cinema, the French New Wave, or late twentieth- and early twenty-first century cinema. Taught in English or French. See department announcements for current topic and language of instruction.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

FREN 590. Special Topics in French and Francophone Studies. 3 Credits.
Examines selected topics in French and francophone studies. Content varies by semester and instructor.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the requisites.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 601. French for Reading. 3 Credits.
French language for reading. For students with no background in French or those needing a review of grammatical structures and vocabulary in preparation for the reading knowledge exam for graduate degrees (FLPA).
Grading status: Letter grade.

FREN 611. French Novelists of the 20th Century. 3 Credits.
Evolution of the novel in France up to the nineties.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the requisites.
Grading status: Letter grade.

FREN 617. Framing Identities: Franco-Arab Transvisual Transcultural Contexts. 3 Credits.
This course focuses on the representation of identities in Franco-Arab contexts and in various artistic productions (fiction, photography, paintings, comics, films, etc.), with a special focus on Algeria, Tunisia, France, Lebanon, and Québec.
Requisites: Prerequisite, FREN 300, 372, or 375.
Gen Ed: VP, GL.
Grading status: Letter grade.

FREN 670. 17th-Century French Literature and Culture. 3 Credits.
In-depth study of a particular aspect of 17th-century literature and culture. Possible topics are the court and its elsewhere, Frenchness and foreignness in the 17th century, theater and theatricality, enchantment and disenchantment.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 675. Literature and Enlightenment, 17th -18th Centuries. 3 Credits.
This seminar examines 17th- and 18th-century French literature in relation to the intellectual, social, and political movements of the Enlightenment. See department announcements for current topic and reading list. In French. Primarily for graduate students; advanced undergraduates may enroll with permission of the instructor.
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

FREN 687. Diaspora and Transculturalism in Québécois Literature. 3 Credits.
Evolution of identity and nationhood in Québécois literature from the 1960s to the present, including the study of the literature of immigration (diasporic or littrature migrante).
Requisites: Prerequisites, FREN 300 and one additional course above FREN 330; permission of the instructor for students lacking the prerequisites.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 690. Special Topics in French and Francophone Studies. 3 Credits.
Examines selected topics in French and francophone studies. Content varies by semester and instructor.
Requisites: Prerequisites, FREN 300, and 370, 371, or 372.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 691H. Honors Thesis in French. 3 Credits.
Required of students reading for honors. Preparation of an essay under the direction of a member of the faculty. Topic to be approved by thesis director in consultation with honors advisor.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

FREN 692H. Honors Thesis in French. 3 Credits.
Restricted to senior honors candidates. Second semester of senior honors thesis. Thesis preparation under the direction of a departmental faculty member.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

FREN 714. French Drama and Film. 3 Credits.
Semiotic readings in French and Francophone theater at the crossroads of cultures from the avant-garde to postmodernism.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

FREN 726. French Feminist Theory. 3 Credits.
An introduction to feminist literary theory, focusing on feminist writings from France (in translation) and their sources in psychoanalysis and poststructuralism. Anglo-American counterparts and adaptations of the French theorists in the United States will also be treated.
Grading status: Letter grade
Same as: WGST 726.

FREN 734. 17th-Century Drama. 3 Credits.
Readings in 16th and 17th-century French theater, Crébillion père and Voltaire. Selection of texts will be announced by the instructor.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

FREN 784. Philosophers of the Enlightenment. 3 Credits.
Intellectual currents (religious, scientific, epistemological) and morals as reflected in such writers as Bayle, la Mettrie, Condillac, Helvétius, d'Holbach, the Encyclopedists, and others.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

FREN 789. Franco-Asian Encounters. 3 Credits.
Cultural encounters between France, Vietnam and China and overview of the French presence in Vietnam from the 1880's to the end of the colonial period in 1954.
Grading status: Letter grade.

FREN 790. Special Topics in French and Francophone Studies. 3 Credits.
Examines selected topics in French and francophone studies. Content varies by semester and instructor.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 794. French 19th-Century Post-Romantic Poetry. 3 Credits.
A study of the evolution of poetry and poetics in modernity beginning with Baudelaire.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

FREN 795. The French Realistic and Naturalistic Novel. 3 Credits.
A study of major realistic and naturalistic novelists (Flaubert, the Goncourts, Daudet, Zola, Maupassant, and Huysmans).
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

FREN 796. French Brief Fiction of the 19th Century and/or 20th Century. 3 Credits.
A study of short narrative as a hybrid genre from a literary and cultural perspective.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

FREN 797. Fin-de-Siècle Literatures. 3 Credits.
Fiction from the 1880s through WWI and its aftermath: modernity (the1850s), decadence, naturalism, the Avant-garde, and the belle époque.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

FREN 840. Special Readings. 1-15 Credits.
Doctoral students only.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

FREN 890. Seminar. 3 Credits.
Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

FREN 992. Master's (Non-Thesis). 3 Credits.
Master's Thesis Substitute
Repeat rules: May be repeated for credit.

FREN 993. Master's Research and Thesis. 3 Credits.

FREN 994. Doctoral Research and Dissertation. 3 Credits.
Research in a special field under the direction of a member of the graduate faculty.
Repeat rules: May be repeated for credit.

Italian (ITAL)

Advanced Undergraduate and Graduate-level Courses

ITAL 401. Beginning Accelerated Italian. 3 Credits.
Covers levels one and two of the basic language sequence in one semester. Designed for highly motivated undergraduate/graduate language learners, especially those who have experienced success with learning another language. Intensive approach to developing all skills but with an emphasis on speaking. Students may not receive credit for both ITAL 401 and ITAL 101 or 102.
Gen Ed: FL.
Grading status: Letter grade.

ITAL 402. Intermediate Accelerated Italian. 3 Credits.
A continuation of ITAL 401, covers levels three and four in one semester. Develops all skills, with increasing emphasis on reading, writing, and cultural analysis. Designed for highly motivated undergraduate/graduate language learners, especially those who have experienced success with learning another language. Prepares students for advanced courses. Students may not receive credit for both ITAL 402 and ITAL 203 or ITAL 204.
Requisites: Prerequisite, ITAL 102 or 401.
Gen Ed: FL.
Grading status: Letter grade.

ITAL 503. Advanced Composition for Graduate Students. 3 Credits.
Review of advanced grammar. Composition on a variety of topics designed to enhance writing proficiency in Italian. Training in the use of stylistic devices.
Grading status: Letter grade.

ITAL 511. Survey of Italian Literature and Culture I (to 1600). 3 Credits.
Permission of the instructor for undergraduates. The survey is based on anthologies, with particular attention to authors and texts included in the current departmental reading lists.
Grading status: Letter grade.

ITAL 512. Survey of Italian Literature and Culture II (1600 to present). 3 Credits.
Permission of the instructor for undergraduates. See ITAL 511 for description.
Grading status: Letter grade.

ITAL 526. History of the Italian Language. 3 Credits.
The evolution of the Italian language from vulgar Latin. Substratum theory and the development of the various dialects. Codification of the literary standard during the Renaissance. "Questione della lingua.
Requisites: Prerequisites, ITAL 204 or 402; permission of the instructor.
Grading status: Letter grade.

ITAL 691H. Honors Thesis. 3 Credits.
Required of students reading for honors. Preparation of an essay under direction of a member of the faculty. Topics to be approved by thesis director in consultation with honors advisor.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ITAL 692H. Honors Thesis in Italian. 3 Credits.
Restricted to senior honors candidates. Second semester of senior honors thesis. Thesis preparation under the direction of a departmental faculty member.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

ITAL 706. Proseminar. 3 Credits.
An introduction to modern Italian criticism and to current methods of research and scholarship. Bibliographic survey of basic tools and secondary literature. Guidance in preparation of papers, theses, and dissertations. Staff.
Grading status: Letter grade.

ITAL 731. Dante I. 3 Credits.
Permission of the instructor for undergraduates. Dante's life and works; a critical reading of the Vita Nuova and Inferno. Original texts; course taught in Italian or English.
Grading status: Letter grade.

ITAL 732. Dante II. 3 Credits.
Permission of the instructor for undergraduates. Completes the critical reading of the Divine Comedy. Original texts; course taught in Italian or English.
Grading status: Letter grade.

ITAL 734. Petrarch and Lyric Tradition. 3 Credits.
A reading of Petrarch's Canzoniere within the context of previous lyric tradition and Petrarchism in Europe. Class discussion in English; readings in Italian for majors and in translation for nonmajors.
Grading status: Letter grade.

ITAL 735. Boccaccio and European Narrative. 3 Credits.
Boccaccio's Decameron within the context of previous narrative traditions and the subsequent development of narrative in Europe. Class discussions in English; readings in Italian for majors and in translation for nonmajors.
Grading status: Letter grade.

ITAL 741. Italian Literature of the Renaissance I: The Quattrocento. 3 Credits.
A study of the major figures of Italian Humanism, Latin, and vernacular, from Salutati to Poliziano.
Requisites: Prerequisite, ITAL 204 or 402.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ITAL 751. Italian Literature of the Renaissance II: The Cinquecento. 3 Credits.
Brief description of the literary and historical situation in the Cinquecento. Three authors studied in detail are Ariosto, Orlando Furioso, Machiavelli, Il Principe, and Castiglione, Il Cortegiano.
Requisites: Prerequisite, ITAL 204 or 402.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ITAL 771. The 17th and 18th Centuries. 3 Credits.
The Age of the Baroque, Campanella, the new genres, Tassoni. The literature of Arcadia, the Enlightenment, Goldoni, Parini, and Alfieri.
Requisites: Prerequisite, ITAL 204 or 402.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ITAL 781. Italian Romanticism. 3 Credits.
Preromanticism; Alfieri; the lyrics and novels of Foscolo, Leopardi, Manzoni; the romantic drama from Pindemonte to Niccolini.
Requisites: Prerequisite, ITAL 204 or 402.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ITAL 782. Italian Literature in the Second Half of the 19th Century. 3 Credits.
The major literary forms in the second half of the century with particular regard to Verismo, Verga, Carducci, Pascoli, Scapigliatura, and Decadentismo.
Requisites: Prerequisite, ITAL 204 or 402.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ITAL 784. Italian Avant-Gardes and Neo-Avant-Gardes 20th Century. 3 Credits.
Examines the critical issues raised by the Italian avant-gardes and neo-avant-gardes of the 20th century.
Requisites: Prerequisite, ITAL 204 or 402.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ITAL 795. Modern Italian Fiction. 3 Credits.
D'Annunzio, Svevo, Moravia, Pavese, Vittorini, Calvino, etc.
Requisites: Prerequisite, ITAL 204 or 402.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ITAL 796. Modern Italian Drama. 3 Credits.
Grotteschi, Pirandello, Italian drama after World War II, Eduardo de Filippo, etc.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

ITAL 830. Seminar. 3 Credits.
Special study and research in set topics; e.g., Seicento and Baroque, autobiography, Renaissance theater, literature and film.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

ITAL 840. Special Readings. 1-15 Credits.
A tutorial on a topic agreed upon by the student and a member of the graduate faculty.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

ITAL 992. Master's (Non-Thesis). 3 Credits.

ITAL 993. Master's Research and Thesis. 3 Credits.
Research in a special field under the direction of a member of the graduate faculty.
Repeat rules: May be repeated for credit.

ITAL 994. Doctoral Research and Dissertation. 3 Credits.
Research in a special field under the direction of a member of the graduate faculty.
Repeat rules: May be repeated for credit.

Portuguese (PORT)

Advanced Undergraduate and Graduate-level Courses

PORT 401. Beginning Accelerated Brazilian Portuguese I. 3 Credits.
Covers levels one and two of the basic language sequence in one semester. Designed for highly motivated undergraduate/graduate language learners, especially those who have experienced success with learning another language. Intensive approach to developing all skills but with an emphasis on speaking. Students may not receive credit for both PORT 401 and PORT 101, 102, 105 or 111.
Gen Ed: FL.
Grading status: Letter grade.

PORT 402. Intermediate Accelerated Brazilian Portuguese II. 3 Credits.
A continuation of PORT 401, covers levels three and four in one semester. Develops all skills, with increasing emphasis on reading, writing, and cultural analysis. Designed for highly motivated undergraduate/graduate language learners, especially those who have experienced success with learning another language. Prepares students for advanced courses. Students may not receive credit for both PORT 402 and PORT 203, PORT 204 or PORT 212.
Requisites: Prerequisite, PORT 102, 111, or 401.
Gen Ed: FL.
Grading status: Letter grade.

PORT 408. LAC Recitation. 1 Credit.
Coregistration in a LAC course required. A recitation section for selected courses that promote foreign language proficiency across the curriculum (LAC). Weekly discussion and readings in Portuguese.
Requisites: Prerequisite, PORT 204 or 402; permission of the instructor for students lacking the prerequisite.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 3 total completions.
Grading status: Letter grade.

PORT 420. Portuguese Language and Culture for the Professions. 3 Credits.
Training for effective oral and written communication in the professional world. Builds upon linguistic and sociolinguistic concepts, refining language and enhancing cultural proficiency through extensive writing and speaking practice. Vocabulary, readings and activities relate to social issues, business professions, and the workplace.
Requisites: Prerequisite, PORT 204 or 402; permission of the instructor for students lacking the prerequisite.
Gen Ed: BN, CI.
Grading status: Letter grade.

PORT 501. Survey of Portuguese Literature I. 3 Credits.
An introduction to Portuguese literature from its origins through the 18th century.
Requisites: Prerequisite, PORT 204 or 402.
Grading status: Letter grade.

PORT 526. History of the Portuguese Language. 3 Credits.
Survey of the history of Portuguese with stress on the characteristics of Brazilian Portuguese and the factors underlying them.
Requisites: Prerequisite, PORT 402; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PORT 530. Varieties of Portuguese. 3 Credits.
Introduction to the linguistic analysis of Portuguese. Basic linguistic comparison of Portuguese dialects at different levels of linguistic structure. Emphasis on theoretical background in understanding language variation as a property of natural languages.
Gen Ed: SS.
Grading status: Letter grade.

PORT 535. Brazilian Drama. 3 Credits.
A study of representative Brazilian plays of the 20th century with a review of the development of the theater in Brazil.
Requisites: Prerequisite, PORT 402; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

PORT 540. Cultural Topics from the Lusophone World. 3 Credits.
This course examines trends in the cultural production of the Lusophone world from the 19th century to the present, including philosophy, art, film, music, and social practices in Portugal, Brazil, and Lusophone Africa. Topics may include artistic movements, race, class, gender, colonialism, and religion.
Requisites: Prerequisite, PORT 204 or 402; permission of the instructor for students lacking the prerequisite.
Gen Ed: CI, GL.
Grading status: Letter grade.

PORT 691H. Honors Thesis. 3 Credits.
Required of all students reading for honors. Preparation of an essay under the direction of a faculty member. Topic to be approved by thesis director in consultation with honors advisor.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

PORT 692H. Honors Thesis in Portuguese. 3 Credits.
Restricted to senior honors candidates. Second semester of senior honors thesis. Thesis preparation under the direction of a departmental faculty member.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

PORT 703. Advanced Composition for Graduate Students. 3 Credits.
Advanced grammar with exercises in translation from English into Portuguese. Free composition and training in the use of stylistic devices.
Grading status: Letter grade.

PORT 704. Luso-Brazilian Bibliography and Methodology. 3 Credits.
An introduction to bibliography and methodology in Luso-Brazilian literary and linguistic research.
Grading status: Letter grade.

PORT 710. The Portuguese Novel. 3 Credits.
A study of prose fiction, particularly from the 19th and 20th centuries, with special emphasis on Camilo Castelo Branco, Eça de Queirós, Aquilino Ribeiro, Ferreira de Castro, and the neo-realistas.
Grading status: Letter grade.

PORT 712. The Brazilian Novel. 3 Credits.
Extensive reading of representative Brazilian novels from the second half of the 19th century to the present.
Grading status: Letter grade.

PORT 713. Machado de Assis. 3 Credits.
A study of the prose fiction, drama, poetry, and criticism of Machado de Assis, with reference to other major writers of the second half of the 19th century.
Grading status: Letter grade.

PORT 714. Modern Brazilian Short Fiction and Essays. 3 Credits.
A study of Brazilian short stories, novelas, and essays of the 20th century.
Grading status: Letter grade.

PORT 721. Old Portuguese. 3 Credits.
A study of Portuguese historical phonology and morphology with readings from medieval verse and prose.
Grading status: Letter grade.

PORT 731. Camões. 3 Credits.
The works of Camões (epic, lyric poetry, and drama) are studied with reference to the contemporary Iberian historical and literary background.
Grading status: Letter grade.

PORT 791. Portuguese Overseas Language and Literature. 3 Credits.
A survey of the use and characteristics of Portuguese as used in Africa and Asia (especially Cape Verde creole) and readings from contemporary African authors using Portuguese.
Grading status: Letter grade.

PORT 830. Seminar in Portuguese Literature. 3 Credits.
Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

PORT 833. Seminar in Luso-Brazilian Linguistics. 3 Credits.
Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

PORT 835. Seminar in Brazilian Literature. 3 Credits.
Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

PORT 840. Special Readings. 1-15 Credits.

PORT 993. Master's Research and Thesis. 3 Credits.

PORT 994. Doctoral Research and Dissertation. 3 Credits.

Romance (ROML)

Advanced Undergraduate and Graduate-level Courses

ROML 490. Special Topics in Romance Studies and Languages. 1-3 Credits.
Examines selected topics in Romance studies and languages. Content varies by semester and instructor.
Grading status: Letter grade.

ROML 500. Research Methods for Romance Languages and European Studies. 3 Credits.
Required preparation, B.A. with honors student or M.A. student. Provides training in research methodology for a B.A. with honors or M.A. thesis. Students will learn to conceptualize an original research project and to identify and assess the current intellectual debates in their chosen areas of research.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

ROML 600. Masters Workshop on Theory. 3 Credits.
This graduate seminar consists of a series of in-depth studies of several major contemporary approaches to literary theory. Designed primarily as an elective for masters candidates in Romance Languages, this course aims to prepare students for advanced literature and literary theory courses.
Grading status: Letter grade.

ROML 650. The Politics of Remembering: Memory, History, and Power in 20th-Century Europe. 3 Credits.
Interdisciplinary, comparative, and multimedia approach to the question of memory and history in 20th-century Europe. Explores individual memory, collective memory, and commemoration. Survey of interdisciplinary approaches to the field and an examination of historical sites through the narratives of mental illness, fiction, memoir, testimonial literature, photography, and film.
Grading status: Letter grade.

ROML 660. Film and Culture in Brazil and Spanish America. 3 Credits.
Critical examination of 20th-century Latin American cultural history in Brazil and Spanish-speaking countries, including Mexico, Cuba, El Salvador, Peru, Colombia, and Argentina. Course is framed between late 19th-century modernization and the contemporary discussion on globalization.
Gen Ed: VP, BN.
Grading status: Letter grade.

ROML 665. Reading Latin American Film and Photography. 3 Credits.
Required preparation, one Spanish or Portuguese major-level literature course or permission of the instructor. Critical readings of photography through the lens of Brazilian and Spanish-American written, photographic, and film archives. This course is designed for graduate and advanced undergraduate students and considers current theoretical movements in photography alongside the historical, political, and aesthetic debates shaping the field of Latin American visual culture.
Gen Ed: VP, BN.
Grading status: Letter grade.

ROML 698. Seminar in Romance Languages: Capstone Course. 3 Credits.
Capstone course.
Grading status: Letter grade.

Graduate-level Courses

ROML 700. Theories and Techniques of Teaching. 3 Credits.
Required of all new graduate instructors. Exploration of theoretical issues in teaching Romance languages with their practical applications, including the integration of technology.
Grading status: Letter grade.

ROML 707. Film Theory and Criticism. 3 Credits.
Introduction to theoretical, analytical and historical approaches to narrative cinema in the Spanish-speaking world. For graduate students with no prior experience working with film.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ROML 751. Introduction to Medieval Studies. 3 Credits.
Interdisciplinary course to introduce graduate students to the sources, methods, and approaches of medieval studies.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ROML 755. Workshop on Literary Theory and Research Methods. 1.5 Credit.
An introduction to contemporary theoretical positions to acquaint the student with issues posed by formalism, Marxism, feminism, and deconstruction. Orientation to Romance bibliography and research methods.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ROML 756. Topics in Translation Studies. 3 Credits.
Permission of instructor. A rotating topic seminar on translation studies, providing an overview of the field and/or specializing in one or more sub-topics: post-colonialism, feminism, theory/practice, adaptation, censorship, activism. See department announcements for current topic and reading list. In English. Fulfills 'theory' requirement for graduate students.
Grading status: Letter grade.

ROML 820. Introduction to Latin for Romance Studies. 3 Credits.
Thorough study of the basic grammar and syntax of classical Latin, followed by readings from representative medieval literary texts and a sampling of writings by the Italian humanists. Restricted to graduate students in the Department of Romance Languages and Literatures.
Grading status: Letter grade.

ROML 824. Romance Paleography. 3 Credits.
Study of the development of medieval romance book hands and diplomatics from their origins to the advent of printing; with practical exercises.
Grading status: Letter grade.

ROML 825. Provençal. 3 Credits.
Linguistic analysis of the langue d'oc and investigation of medieval Provençal literature.
Grading status: Letter grade.

ROML 830. Seminar in Romance Languages. 3 Credits.
Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

ROML 840. Special Readings. 1-21 Credits.

ROML 870. Minor Romance Tongues. 3 Credits.
Introduction to the historical development of Catalan, Rhaeto-Romance, and Rumanian. Readings in period texts.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

ROML 992. Master's (Non-Thesis). 3 Credits.

ROML 993. Master's Research and Thesis. 3 Credits.

ROML 994. Doctoral Research and Dissertation. 3 Credits.

Spanish (SPAN)

Advanced Undergraduate and Graduate-level Courses

SPAN 401. Beginning Accelerated Spanish. 3 Credits.
Covers levels one and two of the basic language sequence in one semester. Designed for highly motivated undergraduate/graduate language learners, especially those who have experienced success with learning another language. Intensive approach to developing all skills but with an emphasis on speaking. Students may not receive credit for both SPAN 401 and SPAN 101, 102, 105 or 111.
Gen Ed: FL.
Grading status: Letter grade.

SPAN 402. Intermediate Accelerated Spanish. 3 Credits.
A continuation of SPAN 401, covers levels three and four in one semester. Develops all skills, with increasing emphasis on reading, writing, and cultural analysis. Designed for highly motivated undergraduate/graduate language learners, especially those who have experienced success with learning another language. Prepares students for advanced courses. Students may not receive credit for both SPAN 402 and SPAN 203, SPAN 204 or SPAN 212.
Requisites: Prerequisite, SPAN 102, 105, 111, or 401.
Gen Ed: FL.
Grading status: Letter grade.

SPAN 404. Elementary Spanish for Health Professionals. 3 Credits.
Distance course requiring access to the Internet. Focuses on communication within the context of Latino/a immigrant culture in health care settings. Students may not receive credit for both SPAN 404 and SPAN 102 or 105.
Grading status: Letter grade.

SPAN 405. Intermediate Spanish for Health Care Professionals. 3 Credits.
Distance course requiring access to the Internet. Focuses on improving communication within the context of Latino/a immigrant culture in health care settings. This course is equivalent to SPAN 203 (Intermediate Spanish I) and therefore fulfills the foreign language requirement. Students may not receive credit for both SPAN 405 and SPAN 203.
Requisites: Prerequisite, SPAN 102 or 404.
Gen Ed: FL.
Grading status: Letter grade.

SPAN 414. Languages of Spain I. 3 Credits.
Study of the language and culture of one of the languages of Spain other than Spanish. Selection will vary according to term: Catalan, Euskera (Basque), Galician.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

SPAN 415. Languages of Spain II. 3 Credits.
Continuation of the study of the language and culture of one of the languages of Spain other than Spanish. Selection will vary according to term: Catalan, Euskera, Galician.
Requisites: Prerequisite, SPAN 414.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

SPAN 416. Languages of the Americas I. 3 Credits.
Study of the language and culture of one of the languages of Spanish America other than Spanish. Selection will vary according to term: Mayan, Nahuatl, Quechua, Guarani.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

SPAN 417. Languages of the Americas II. 3 Credits.
Continuation of the study of the language and culture of one of the languages of Spanish America other than Spanish. Selection will vary according to term: Mayan, Nahuatl, Quechua, Guarani.
Requisites: Prerequisite, SPAN 416.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

SPAN 601. Spanish for Reading. 3 Credits.
For students with no background in Spanish or those needing a review of grammatical structures and vocabulary in preparation for the reading knowledge exam for graduate students (FLPA).
Grading status: Letter grade.

SPAN 613. Colonial and 19th-Century Spanish American Literature. 3 Credits.
Advanced survey of literary works from 16th- through 19th-century Spanish America, with emphasis on their rhetorical foundations and historical, political, and aesthetic connections.
Requisites: Prerequisites, SPAN 371 and 373.
Grading status: Letter grade.

SPAN 614. Modernist and Contemporary Spanish American Literature. 3 Credits.
Advanced survey of Spanish American works from the 1880s through the present, with emphasis on their rhetorical foundations and historical, cultural, political, and aesthetic connections.
Requisites: Prerequisites, SPAN 371 and 373.
Grading status: Letter grade.

SPAN 617. Cervantes and the Quijote. 3 Credits.
Close reading of Cervantes' Quijote and selected Novelas ejemplares, with consideration of the background of Renaissance prose (romance of chivalry, pastoral, and sentimental novel) in relation to 16th-century historiography.
Requisites: Prerequisites, SPAN 371 and 373.
Grading status: Letter grade.

SPAN 620. Women in Hispanic Literature. 3 Credits.
The image of woman in 16th- and 17th-century Hispanic literature. A study of texts by Spanish and Spanish American authors. Readings in Spanish or in English translation. Lectures in English.
Requisites: Prerequisites, SPAN 371 and 373.
Grading status: Letter grade
Same as: WGST 620.

SPAN 621. Literary and Cultural History of the Spanish Language. 3 Credits.
A historical study of the cultural and societal factors that influence the evolution of the Spanish language and its literature, from its first written documents in the ninth century to literatures written in Spanglish today.
Requisites: Prerequisite, SPAN 301 or 302; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

SPAN 625. Indigenous Literatures and Cultures of the Américas. 3 Credits.
Panoramic view of indigenous literatures in the Américas through a study of a variety of indigenous textual production including chronicles, manifestos, novels, testimonial narratives, short stories, poetry, artistic production, and film.
Gen Ed: LA, BN.
Grading status: Letter grade.

SPAN 630. Literature and the Visual Arts in Spain. 3 Credits.
Study of the literature of the Iberian Peninsula and developments in the visual arts from the Middle Ages to the early 20th century.
Grading status: Letter grade.

SPAN 650. The Spanish Comedia of the Golden Age. 3 Credits.
A comprehensive study of the Golden Age Spanish theater from its Renaissance beginnings through the 17th century.
Requisites: Prerequisites, SPAN 371 and 373.
Grading status: Letter grade.

SPAN 661. Film Studies: Iberia and the Americas. 3 Credits.
Advanced study of the history and theory of film produced in the Spanish- and Portuguese-speaking worlds for beginning graduate students and advanced undergraduates. Readings in film history and theory will build students' knowledge in cultural, political, and aesthetic issues. Class discussions emphasize critical and analytical thought.
Requisites: Prerequisite, SPAN 361; permission of the instructor for students lacking the prerequisite.
Gen Ed: VP, GL.
Grading status: Letter grade.

SPAN 676. Advanced Spanish Phonology. 3 Credits.
Topics in Spanish phonology from a range of theoretical perspectives. Autosegmental theory, optimality theory (OT), syllable structure, stress and accent, and the interaction of phonology and morphology.
Requisites: Prerequisite, SPAN 376; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

SPAN 677. Spanish Syntax. 3 Credits.
Why do we say in Spanish "me gusta" ("to me pleases") for "I like it"? Syntax studies how words associate in larger structures. This class provides the tools to understand the forms of different varieties of Spanish.
Requisites: Prerequisite, SPAN 360; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

SPAN 678. History of the Spanish Language. 3 Credits.
SPAN 376 desirable. A theoretical study of the evolution of Spanish from classical and spoken Latin, focusing on phonological, morphological, and syntactic phenomena. Intended for linguistics majors.
Requisites: Prerequisite, SPAN 360; permission of the instructor for students lacking the prerequisite.
Gen Ed: HS, WB.
Grading status: Letter grade
Same as: LING 678.

SPAN 679. Spanish Pragmatics. 3 Credits.
This course is an introduction to the study of meaning and language use, with a focus on Spanish. Includes discussion of the classical texts in the field as well as analysis of a variety of data (corpora, fieldwork, and experimental materials).
Requisites: Prerequisite, SPAN 360.
Gen Ed: SS.
Grading status: Letter grade.

SPAN 680. First- and Second-Language Acquisition of Spanish. 3 Credits.
Why and how do children learn language so easily, and why is it so difficult for adults to learn a second language? This course examines these and related questions in the light of current theories of first and second language acquisition, with a focus on Spanish.
Requisites: Prerequisite, SPAN 360; permission of the instructor for students lacking the prerequisite.
Gen Ed: SS.
Grading status: Letter grade.

SPAN 681. Spanish Semantics. 3 Credits.
This course is an upper undergraduate/graduate-level introduction to the study of the meaning of words and sentences, with a focus on Spanish. It covers the following topics: truth-conditional theories of meaning, modality, quantification, reference, tense and aspect, Aktionsart. The course also addresses cross-linguistic data collection, e.g., field work and experimental methods.
Requisites: Prerequisite, SPAN 360.
Grading status: Letter grade.

SPAN 682. Spanish Sociolinguistics. 3 Credits.
Interdisciplinary approach to studying the Spanish language as a social and cultural phenomenon. Explores the relationship between language and culture, communicative competence and pragmatics, social and linguistic factors in language variation and change, attitudes toward language and language choice, linguistic prejudice and language myths, and language and identity.
Requisites: Prerequisite, SPAN 360, 376, or 378.
Gen Ed: SS.
Grading status: Letter grade.

SPAN 683. Guaraní Linguistics. 3 Credits.
Guaraní, an official language of Paraguay, is the only indigenous language in the Americas (and possibly in the world) that is spoken natively by a nonindigenous majority. This seminar explores the linguistics of Guaraní: its typology, history, grammar, and sociolinguistics.
Requisites: Prerequisite, SPAN 360; permission of the instructor for students lacking the prerequisite.
Gen Ed: BN, GL.
Grading status: Letter grade.

SPAN 691H. Honors Thesis. 3 Credits.
Required of students reading for honors. Preparation of an essay under the direction of a faculty member. Topic to be approved by thesis director in consultation with honors advisor.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

SPAN 692H. Honors Thesis in Spanish. 3 Credits.
Restricted to senior honors candidates. Second semester of senior honors thesis. Thesis preparation under the direction of a departmental faculty member.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

SPAN 701. Beginnings of Castilian Hegemony to 1369. 3 Credits.
Early medieval romance period (11th century to 1369). The establishment of Castilian hegemony studied through a variety of texts (chronicles, miracles, collections of law and exempla, fueros, epic and lyric poems).
Grading status: Letter grade.

SPAN 702. The Trastamara Dynasty: 1369 to 1504/1516. 3 Credits.
The final shaping of Castile, the beginning of nationhood, and American expansion studied through a variety of texts (chronicles, books of chivalry, lyric and narrative poems, sentimental novels, and travel narratives).
Grading status: Letter grade.

SPAN 709. Nonfiction Prose of the 16th and 17th Centuries. 3 Credits.
An examination of the histories, chronicles, and other documents written in Spain and Spanish American, with special emphasis on the literature of exploration.
Grading status: Letter grade.

SPAN 710. 19th-Century Spanish Novel. 3 Credits.
A study of the development of romanticism, costumbrismo, realism, and naturalism, principally through the novels of Gil y Carrasco, Pereda, Valera, Pérez Galdós, Pardo Bazán, Clarín, and Blasco Ibañez. .
Grading status: Letter grade.

SPAN 711. The Modern Spanish Novel. 3 Credits.
Trends in modern Spanish narrative fiction from 1898 to 1975. Modernism, Civil War, and dictatorship.
Grading status: Letter grade.

SPAN 712. The Contemporary Spanish Novel. 3 Credits.
Trends in contemporary Spanish narrative from 1975 to the present. Post-totalitarian fiction, postmodernism, and minority literatures.
Grading status: Letter grade.

SPAN 713. War, History, and Society in Iberian Narrative and Film. 3 Credits.
Focuses on the narrative production of Iberian literature in Castilian, Catalan, Basque, and Galician since 1936, with their corresponding film adaptations when available. Begins with the end of the Spanish Civil War, continuing with the years of the Francoist dictatorship and the transition to democracy, and concludes with Spain today.
Grading status: Letter grade.

SPAN 714. Golden Age Poetry. 3 Credits.
Selected poetic works from Garcilaso through Quevedo.
Grading status: Letter grade.

SPAN 715. Modern and Contemporary Spanish Poetry. 3 Credits.
Study of Spanish poetry from the 19th to the 21st centuries in terms of aesthetics and literary movements including romanticism, modernism, and postmodernism.
Grading status: Letter grade.

SPAN 716. Contemporary Lyric Poetry. 3 Credits.
Major poets from the Generation of 1927 to the present.
Grading status: Letter grade.

SPAN 721. Old Spanish I. 3 Credits.
Provides a detailed and comprehensive survey of the Spanish language, tracking its development from its Indo-European ancestors to modern usage and examining its phonology, morpho-syntax, verbal dynamics, lexis, and semantics.
Grading status: Letter grade.

SPAN 722. Old Spanish II. 3 Credits.
Traces the development of the Spanish language from Latin to the present, focusing upon cultural, literary, and historical factors that have contributed to its evolution.
Grading status: Letter grade.

SPAN 725. Golden Age Prose. 3 Credits.
The major prose works of the Golden Age, excluding those of Cervantes.
Grading status: Letter grade.

SPAN 737. Topics in Contemporary Literary and Cultural Theory. 3 Credits.
Study of major topics in modern theory such as identities, time, space, history, nation, language, text, and image, from modernity to post-modernity and beyond.
Grading status: Letter grade.

SPAN 738. Topics in the Intellectual History of Spain. 3 Credits.
Historical concepts such as power, ideology, class, culture, identity, attitude, race, perception, and methods as they developed among elite and nonelite groups of the 16th and 17th century Spanish society. Focuses on evolution of ideas, sciences, arts, techniques, and cultural expression of social movements - nationalism, colonialism, racism - and historical reflection.
Grading status: Letter grade.

SPAN 741. The Essay and Short Story. 3 Credits.
Theory and practice of the essay and short story. Topics include masters of the Spanish American and international essay and short story, the evolution of both genres, gender, cultural studies.
Grading status: Letter grade
Same as: CMPL 741.

SPAN 742. Poiesis in Spanish America. 3 Credits.
Theories and practices of literary creation across genres and periods.
Grading status: Letter grade.

SPAN 743. Topics in Spanish American Performance Studies. 3 Credits.
A thorough grounding in contemporary plays in the Spanish-speaking Americas. Topics include performing class, ethnicity, and gender; parody; staging nations; politics of metatheatre; postmodern agency; and the performance of everyday life.
Grading status: Letter grade.

SPAN 744. The Aesthetics of the Baroque in Spanish American Literature. 3 Credits.
The origin, development, and persistence of a baroque aesthetic in Spanish American literature through an examination of diverse theories of baroque and close readings of representative texts.
Grading status: Letter grade.

SPAN 745. The Vanguards. 3 Credits.
The theory and practice of innovative writing, especially since the 19th century. Topics include the historical Spanish American and Anglo-European vanguards, experimental literature, modernismo's literary rebellion, gender, and cultural studies.
Grading status: Letter grade
Same as: CMPL 745.

SPAN 746. The Novel in Spanish America. 3 Credits.
The novel to 1960. The course examines romanticism, realism, naturalism, modernism, and the new national literatures through such authors as Avellaneda, Blest Gana, Silva, Asturias, Carpentier, Rulfo, Bombal, and Vargas Llosa.
Grading status: Letter grade.

SPAN 747. The Contemporary Spanish American Novel. 3 Credits.
The theory and practice of the novel since the 1960s. Topics include the Spanish American "Boom" of the 60s and 70s, major international trends and writers, gender, cultural studies.
Grading status: Letter grade
Same as: CMPL 747.

SPAN 750. Enlightenment and Romanticism in Spain. 3 Credits.
Readings from 18th and 19th-century Spanish authors in various genres.
Grading status: Letter grade.

SPAN 834. Seminar in Peninsular Spanish Literature and Culture. 3 Credits.
Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

SPAN 835. Seminar in Spanish American Literature. 3 Credits.
Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

SPAN 836. Seminar Spanish/Spanish American Transatlantic Topics. 3 Credits.
Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading status: Letter grade.

SPAN 840. Special Readings. 1-15 Credits.
Doctoral students only.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

SPAN 992. Master's (Non-Thesis). 3 Credits.

SPAN 993. Master's Research and Thesis. 3 Credits.

SPAN 994. Doctoral Research and Dissertation. 3 Credits.

SCHOOL OF SOCIAL WORK (GRAD)

Contact Information

School of Social Work
Visit Program Website (http://ssw.unc.edu)

Gary L. Bowen, Dean

The School of Social Work offers programs leading to the M.S.W. and the Ph.D. degrees.

Admission into the M.S.W. program is based on an evaluation of the applicant's transcripts, references, written statement of interest in the field, prior experience, and readiness to undertake graduate professional education. To be considered for admission, the applicant must have a bachelor's degree from an accredited college or university, preferably with a broad liberal arts preparation in social and biological sciences and the humanities.

In the admissions process for the Ph.D. program, students are asked to provide evidence of

- A master's degree in social work from a school accredited by the Council on Social Work Education or, less preferably, in a related discipline
- Academic ability, as demonstrated in academic achievement and Graduate Record Examination (GRE) scores
- Writing ability, as demonstrated in a writing sample
- Commitment to the values, goals, and purposes of the social work profession
- Professional experience in human services, and
- A direction for and commitment to scholarly work congruent with the objectives and resources of the doctoral program.

The M.S.W. Program

Students complete the M.S.W. generalist curriculum of 29 credit hours of content in the areas of human behavior and the social environment, institutionalized discrimination, social work practice, social policy, and research. In the evidence-informed practice specialization curriculum, students choose among two concentrations for an additional 33 academic credit hours: the community, management and policy practice concentration (CMPP), and the direct practice concentration (DP). The CMPP concentration prepare students for advanced work in social work administration, management, and community and policy practice. The DP concentration prepares students for advanced practice with individuals, families, and groups.

In both the M.S.W. generalist and specialization curriculum, students also enroll in field education in addition to their classroom-based coursework. In field education, M.S.W. students are placed in more than 250 government, nonprofit, and other human services agencies throughout North Carolina each semester of their studies. Through these field placements, students receive hands-on experience working in a wide array of practice areas such as anti-poverty programs, child welfare, community and program development, family violence, healthcare, and behavioral health.

Students develop coherent and cohesive plans of study to meet their M.S.W. degree requirements in consultation with faculty advisors. Working with their advisors, students select courses to meet their individual professional and educational goals, while also meeting the academic requirements of their concentration. In addition, students can explore content outside of their concentration and use elective credits to pursue learning goals related to diverse areas of interest.

The typical time for degree completion is four semesters of full-time study. However, graduates of undergraduate social work programs that are accredited by the Council on Social Work Education who meet specific course and admissions requirements are eligible to apply for the advanced standing program. In the advanced standing program, students fulfill the degree requirements in 12 months beginning in May of each year.

The School of Social Work also offers two distance-education programs — one that is offered on UNC–Chapel Hill's campus and the other that is located in Winston-Salem. Students in these programs complete M.S.W. degree requirements over the course of three years. The first two years of M.S.W. study take place at the distance-education program site. In the first year, students take two courses each semester. In the second year of these programs, students take two courses each semester, participate in a field seminar, and complete 16 hours per week in a field placement each semester. In the final year, distance-education students complete the degree as full-time students on the UNC–Chapel Hill campus.

The Ph.D. Program in Social Work

The Ph.D. program in social work is designed to meet the growing demand for social work and social welfare research scholars in academic and research settings. It produces graduates capable of building and testing explanatory and practice theory to inform social interventions and policies. Training in theory, research methodology, data analysis, and substantive areas of focus prepares graduates to build, test, and refine explanatory theory to understand social problems, and practice theory to understand change processes, design social interventions that test explanatory and/or practice theory, and assess the effects of social interventions and policies through process, outcome, and impact evaluation.

The curriculum is grounded in core social work and social welfare courses and thorough training in research methodology and data analysis. At the same time, students design their program of study to focus on a social problem and intervention in their area(s) of interest. Students also complete a teaching practicum and are provided opportunities to teach in the M.S.W. program.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Distinguished Professors

Gary L. Bowen (98), Social Work with Families, Middle and High School Success, Crime and Violence in Schools, Work and Family Linkages, Military Families, Community Capacity Building, Neighborhood Effects, Performance-Driven Management
Iris B. Carlton-LaNey (239), Social Welfare History (Especially African Americans and the Progressive Era), Rural Elderly African American Women and Social Support
Ding-Geng Chen (212), Biostatistics, Clinical Trials, Adaptive Design and Analysis, Meta-Analysis, Structural Equation Modeling, Multi-level Modeling, Cusp Catastrophe Modeling, Methodology Development for Social Interventions

Rebecca J.Macy (325), Interpersonal and Relationship Violence, Coping with Personal Threats and Trauma, Prevention and Practice Interventions
Kimberly J. Strom-Gottfried (038), Professional Ethics, Moral Courage, Leadership, Higher Education
Mark Testa (217), Kinship Foster Care, Adoption and Guardianship, Child Welfare Consent Decrees and Class-Action Litigation, Social Indicators and Child and Family Policy, Experimental and Quasi-Experimental Designs
Sheryl Zimmerman (295), Evaluation of Practice, Social Gerontology, Psychosocial Aspects of Health, Long-Term Care, Outcome Research, Methods for Studying Older Populations, Dementia, Assisted Living, Nursing Homes

Professors

Mimi V. Chapman (293), Child and Adolescent Health, Mental Health and Well-Being, Latino Migration and Adaptation, In-Country Chinese Migration and Social Work Practice, Provider Preparation for Working with Diverse Populations, Mental Health Service Use, Visual and Arts-Based Methods and Interventions
Michael Lambert (102), Research and Measurement of Biopsychosocial Adjustment in Children, Youth, Adults, and Families Cross-Nationally, Clinical Interest in Treatment of Trauma, Family and Individual Psychotherapy
Gary M. Nelson (83), Organizational and Community Change, Social Gerontology, Self-Evaluation

Research Professors

Dean F. Duncan III (218), Human Trafficking, Child Welfare, Youth Aging Out of Foster Care, Management of Human Services Agencies, Research Methods, Community Collaboration
Kirsten L. Kainz (105), Knowledge Exchange, Evidence Use, Causal Inference and Explanation, Quantitative Methods, Mixed Methods

Associate Professors

Sarah E. Bledsoe (202), Mental Health Services Research, Evidence-Based Practice, Perinatal Mental Health, Interpersonal Psychotherapy, Mood, Anxiety, and Trauma Disorders, Developmental Impact of Interpersonal Trauma, Intervention and Implementation Research, Culturally and Community Relevant Practices, Low-Income Populations
Gina A. Chowa (206), International Social Development, Asset Building, HIV/AIDS, Social Protection and Financial Capability
Gary S. Cuddeback (279), Severe Mental Illness, Criminal Justice, Mental Health Services
Trenette Clark Goings (304), Substance Use Prevention, Prevention Science, Resilience, Health Disparities
Melissa A. Lippold (260), The Role of Parent-Child Relationships in the Development of Risky Behavior, Promotion of Adolescent Health Design, Implementation of Preventive Interventions
Lisa D. Zerden (222), HIV/AIDS Prevention, Health Disparities and Access, Health Policy, Injection Drug Use and Harm Reduction, Social Welfare Policy and History, Role of Social Work in Integrated Care

Clinical Associate Professors

Travis J. Albritton (200), Public Child Welfare, Substance Abuse Services, Spirituality and Social Work Practice, Family and Community Social Supports
Deborah Barrett (246), Direct Practice, Chronic Pain, Dialectical Behavioral Therapy, Mindfulness, Group Work
Rebecca B. Brigham (091), Child Welfare and Public Policy, Foster Care and Adoption, Adult Learning Theory, International Social Work Education, Social Work Field Education
Selena B. Childs (205), Child Welfare, Evidence-Informed Practice, Research, Workforce Development, Policy Development, Advocacy
Lane G. Cooke (244), Evidence- and Competency-Based Child Welfare Training, Child Protective Services, Foster Care, and Adoptions Services, Child Welfare Data and Outcomes, Collective Impact
Jodon A. Flick (298), Clinical Safety, Suicide, Mental Health, Child Welfare
John D. McMahon (232), Family and Children's Services, Child Welfare, Improving Outcomes for Families
Sarah M. Naylor (256), Academic Advising, Qualitative Research, Higher Education, Program Evaluation
Tamara Norris (107), Family Support, Disability Policy and Practice, Macro Practice, Community Impact
Wanda F. Reives (012), Public Child Welfare, Human Trafficking, Public Human Services Management/Leadership
Mary Anne P. Salmon (219), Aging Issues (with Focus on Underserved Populations), Survey Development, Aging and Demographics, Adult Guardianship and Its Alternatives
Laurie J. Selz-Campbell (240), Support for Adults and Parents with Severe Mental Illness, Arts-Based Interventions, Dialogue-Based Interventions, Social Welfare Policy
Tina M. Souders (007), Professional Ethics, Social Work and the Law, Macro Practice with Organizations and Communities, Instructional Design and Technology
Sarah B. Verbiest (203), Maternal and Infant Health, Women's Health, Health Equity, Primary Prevention, Leadership Development, Partnership Building, Boundary Spanning, Strategic Planning, Reproductive Justice
Martha A. Weems (252), Clinical Practice, Substance Abuse, Mental Health, Crisis Intervention

Research Associate Professor

Steven H. Day (387), Program Evaluation, Intervention Research, Delinquency Prevention, Arts-Based Intervention

Assistant Professors

David Ansong (082), Educational and Economic Disparities, Youth Asset Development, International Social Development, Community Development
Rachel Goode (361), Psychosocial Interventions for Obesity Prevention and Treatment, Assessment and Treatment of Disordered Eating Behaviors, Racial and Ethnic Disparities in Obesity Prevalence and Treatment Outcomes, Design and Conduct of Community-Based Health Promotion Interventions, Racial Reconciliation and Healing, Spirituality in Social Work Practice, Qualitative Research
William Hall (362), Mental Health, Health Disparities, Cultural Competency/Humility, Social Policy Related to Sexual Orientation and Gender Identity, Interventions with LGBTQ Youth
Paul J. Lanier (027), Child Maltreatment Prevention, Child Well-Being, Parenting, Evidence-Based Practice
Rainier Masa (23), Economic and Social Aspects of Health, HIV Prevention and Treatment, Food and Nutrition Security, Adolescents and Young Adults in Low Resource Settings
Cynthia Fraga Rizo (234), Intimate Partner Violence, Child Exposure to Intimate Partner Violence, Human Trafficking, Latina and Immigrant Survivors of Intimate Partner Violence, Coping, Evaluation
Amy E. Wilson (225), Public Mental Health Services, Dual Diagnosis, Serious Mental Illness, Reentry from Jails/Prisons, Mental Illness and Criminal Justice

Clinical Assistant Professors

Mellicent O. Blythe (203), Trauma-Informed Practice, Community Mental Health, Workforce Development, Public Policy, Implementation of Evidence-Based Treatments
Tara L. Bohley (110), Family Systems, Child Welfare, Adolescent Mental Health, Nonprofit Management, Public Policy
Kanisha C. Brevard (250)
Senga Ann Carroll (360)
Tonia Jacobs Deese (209), Family Systems Theory, Child Mental Health, Trauma and the Impact of Culture on Family Outcomes, Best Practices in Child Welfare
Denisé G. Dews (005), Aging, End-of-Life Care, Medical Social Work, Field Education, Child Welfare Workforce, Integrated Health, Interprofessional Education
Marilyn A. Ghezzi (243), Severe Mental Illness, Group Work, Psychotherapy Approaches and Integration
Melissa L. Godwin (210), Substance Abuse Prevention and Intervention, School-Based Mental Health Services, Gender Issues, Clinical Social Work
Amy Locklear Hertel (363)
Quentin J. Hinson (241), Human Migration, Immigration Policy, Immigrant and Refugee Health, Mental Health and Substance Abuse, Migrant Farmworkers, Program Development
Linda H. Kendall (101), Collective Impact and Community Engagement Projects in Aging, Disabilities and Family Caregiver Issues, Individual and Group Facilitation
Lisa R. Lackmann (247), Child and Adolescent Behavioral Health, Integrated Care, Family Support
Rodney D. Little (226), Group Process and Facilitation, Leadership Development for Supervisors/Managers in Public Social Services, Conflict Resolution, Rural Social Work Practice and Culture, Grief Loss and Bereavement
Patricia A. McGovern (291), Etiology, Risk Mechanisms and Decision-Making Determinants of Substance Use and Behavioral Addictions, Consequences of Substance Use among College Students, Development and Evaluation of Substance Use and Behavioral Addiction Interventions
Michael E. McGuire (294), Adolescent and Family Development, Childhood Trauma, Substance Use Treatment, Experiential Learning, Issues Around Military Families, Motivational Interviewing, Feedback Informed Treatment, Clinical Supervision, Clinical Model Implementation, Ethics, Workforce Development
Sherry C. Mergner (275), Disability Rights and Advocacy, Autism Spectrum Disorder (ASD), Intellectual and Developmental Disabilities (IDD), Families of Children with Special Needs, Emotional Regulation and Social Cognitive Strategies for Individuals with ASD and Related Disorders, Sexual Health Education, Cognitive Behavioral Therapy and Modified Dialectical Behavioral Therapy with Individuals with ASD/IDD, LGBTQ Issues, Women's Issues, Spirituality and Psychotherapy
Andrea J. Murray Lichtman (281), Social Justice, Equity and Access, Addiction, Spirituality and Health/Mental Health in Clinical Practice, Life Stage Transitions for Individuals, Couples and Families
M. Theresa Palmer (258), Clinical Practice with Children, Adolescents, and Families, Clinical Supervision, Microagression and Hidden Bias, Field Education, Environmental Social Work
Laura Phipps (257), Positive Behavior Intervention and Supports, Trauma-Informed Child Welfare, Implementation Science and Outcomes Focused Practice
Sharon H. Thomas (261), Adolescent Pregnancy Prevention/Risk Behaviors, Families and Children, Interventions with Families of Color, International Social Work Education
Tonya B. VanDeinse (333), Adults with Mental Illness, Criminal Justice, Mental Health Services, Implementation Science
Ashton P. Williams (235), Trauma-Informed and Resiliency-Focused Practice, Child Welfare Workforce Development, Community Resiliency Model (CRM) trainer
Tauchiana J. Williams (259), School Social Work, Child and Adolescent Mental Health, Trauma
Ronni L. Zuckerman (052), Families and Children, Child and Adolescent Mental Health, Adolescent Pregnancy Prevention

Research Assistant Professors

Todd M. Jensen (103), Family Stress and Resilience, Family Instability, Military Families, Youth Development, Quantitative Methods, Engaged Scholarship
Crystal Joy Stewart (242), Child Welfare, Research Methods, Program Evaluation, Data Science, Youth Aging Out of Foster Care, Trauma-Informed Care, Human Trafficking

Clinical Instructors

Bernice Adjabeng (034), Nonprofit Leadership and Management, Adult Mental Health and Substance Use, Program Evaluation
Chrystal Coble (038), Juvenile Justice and Diversion, Continuing Professional Education in Child Welfare, Change Management and Organizational Development, LGBTQ Students in Higher Education
Annamae T. Giles (216), Healthcare, Aging, Death and Dying
Karon F. Johnson (229), Trauma-Informed Practice, Grief and Loss, Crisis Intervention, Spirituality and Social Work, Culturally-Relevant Practice, Ethics in Work with Diverse Populations
Amy S. Levine (236), Child Welfare, Child and Adolescent Mental Health, Trauma-Informed Care, Clinical Practice
Robin Sansing (213), Community Management and Policy Practice (CMPP), Contemplative Practices in Higher Education and Social Work Practice, Leadership Development, Community Mental Health

Professors Emeriti

S. Rachel Dedmon
Andrew W. Dobelstein
Mark Fraser
Maeda Galinsky
Dorothy N. Gamble
H. Carlisle Henley Jr.
Hortense K. McClinton
Dennis Orthner
Jack M. Richman
Amelia Roberts-Lewis
Kathleen A. Rounds
Charles Lindsey (Lynn) Usher
Marie Weil
Irene Zipper

SOWO

Advanced Undergraduate and Graduate-level Courses

SOWO 403. Social Work Study Abroad. 1-6 Credits.
Variable content. Course examines international social issues, programs, and policies and their impact on client populations and cultures in a particular country or global region.
Grading status: Letter grade.

SOWO 404. Social Work Study Abroad: Africa. 1-6 Credits.
Course examines social issues, development strategies, health/mental health programs. Explores how country's fledgling democracy and people are redesigning organizations and interventions to respond to the needs of South Africans.
Grading status: Letter grade.

SOWO 489. Public Service and Social Change. 4 Credits.
Course examines the role of volunteer involvement and citizen participation in community development, grassroots organizing, advocacy, and other efforts to create a more just and democratic society. Includes a service-learning requirement.
Grading status: Letter grade.

SOWO 490. Preprofessional Special Topic. 1-6 Credits.
Focuses on current professional social work issues. The focus will be specified each time the course is offered.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 6 total completions.
Grading status: Letter grade.

SOWO 491. Community Organizing for Social Change. 4 Credits.
Course examines different types of advocacy strategies and their use in efforts both to enhance the delivery of services to disadvantaged populations and to promote social change in communities.
Grading status: Letter grade.

SOWO 492. Seminar in Service Learning. 1-6 Credits.
Participants explore frameworks, values, and skills around the democratic principles of service, citizenship, and social justice. Accompanies an intensive, paid internship in a local nonprofit agency.
Gen Ed: EE- Service Learning.
Repeat rules: May be repeated for credit. 6 total credits. 6 total completions.
Grading status: Letter grade.

SOWO 495. Undergraduate Research in Social Work. 1-6 Credits.
Research under the supervision of a selected instructor. Approved learning contract required.
Requisites: Prerequisite, Permission of the instructor and school.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 12 total completions.
Grading status: Letter grade.

SOWO 500. Human Development in Context I: Infancy to Adolescence. 3 Credits.
Course provides an overview of child and adolescent development in an environmental context, surveying major theoretical frameworks and highlighting the impact of different factors on individual development, functioning and health.
Grading status: Letter grade.

SOWO 501. Confronting Oppression and Institutional Discrimination. 3 Credits.
This course examines institutionalized oppression and its implications for social work practice at all levels, emphasizing the consequences of social inequality and the social worker's responsibilities to fight oppression.
Grading status: Letter grade.

SOWO 505. Human Development in Context II: Adulthood. 3 Credits.
This course reviews typical and divergent adult development in context, surveys major theoretical frameworks, and highlights the impact of social injustices on adult development.
Grading status: Letter grade.

SOWO 510. Foundations for Evidence-Based Practice and Program Evaluation. 3 Credits.
Develop knowledge of evidence-based practice, including skills needed to acquire and assess appropriate interventions for practice and skills required to evaluate social work practice.
Grading status: Letter grade.

SOWO 520. Social Work Practicum I. 3 Credits.
Students learn beginning practice skills through experimental opportunities and apply core knowledge to direct (individuals, families, groups) and macro (organizations, communities) social work practice two days per week in an agency setting. (Field fee: $300.)
Grading status: Letter grade.

SOWO 521. Social Work Practicum II. 3 Credits.
A continuation of SOWO 520, providing opportunities for students to demonstrate increased ability to assess, plan, administer, and evaluate appropriate social work practice interventions. (Field fee: $300.)
Grading status: Letter grade.

SOWO 522. Pre-Concentration Practicum for Advanced Standing Students. 4 Credits.
Course designed to assist students in summer classroom learning with direct experience in specialized field of practices. Serves to bridge the B.A.S.W. practicum with advanced concentration practicum. (Field fee: $300.)
Grading status: Letter grade.

SOWO 523. Foundation Field Seminar I. 1 Credit.
Course is designed to assist students in integrating and applying classroom learning with the direct experience of the foundation field practicum. Opportunities are provided for discussion, support, and skills practice.
Grading status: Letter grade.

SOWO 524. Foundation Field Seminar II. 1 Credit.
Course is designed to assist students in integrating and applying classroom learning with the direct experience of the foundation field practicum. Opportunities are provided for discussion, support, and skills practice.
Grading status: Letter grade.

SOWO 530. Foundations of Social Welfare and Social Work. 3 Credits.
Introduces public welfare policy through lecture and discussion of the purposes public welfare serves; describes the most important programs created by those policies.
Grading status: Letter grade.

SOWO 540. Social Work Practice with Individuals, Families, and Groups. 3 Credits.
Provides the foundation for social work practice with individuals, families, and groups. It emphasizes basic knowledge, analytic and practice skills, and values necessary for practice.
Grading status: Letter grade.

SOWO 570. Social Work Practice with Organizations and Communities. 3 Credits.
In this course participants explore frameworks, values, and skills to meet individual and family needs through interventions with work groups, organizations, and communities.
Grading status: Letter grade.

SOWO 613I. Intermediate Spanish for Health Care I. 3 Credits.
This intermediate course is the equivalent of the third semester of college Spanish. Students will hone their listening and speaking skills in class primarily through role-playing activities and class discussion. Activities center on an original film set in a health clinic in rural North Carolina.
Grading status: Letter grade
Same as: PUBH 613, AHSC 613I, NURS 613I.

SOWO 614I. Intermediate Spanish for Health Care II. 3 Credits.
Permission of the instructor. This primarily e-learning course provides public health students with the opportunity to improve their oral communication skills in Spanish at the intermediate level via DVD, Web, and workbook. Instructor-led. Online course.
Requisites: Prerequisite, PUBH 613I.
Grading status: Pass/Fail
Same as: PUBH 614I, AHSC 614I, NURS 614I.

SOWO 615I. Advanced Spanish for Health Care I. 3 Credits.
Required preparation, third semester Spanish or equivalent. This advanced course reviews the grammar of the third and fourth semester of college Spanish. Students hone their listening and speaking skills through role-playing activities and class discussion. Activities center on an original film set in a Latino-run health clinic.
Grading status: Letter grade
Same as: PUBH 615, AHSC 615I, NURS 615I.

Graduate-level Courses

SOWO 700. Alcohol, Tobacco, and Other Drugs (ATOD): Abuse and Dependence. 3 Credits.
Surveys the field of substance use, abuse, and dependency, providing an overview of macro and micro issues and the use of the bio-psycho-social-spiritual model of addictions.
Grading status: Letter grade.

SOWO 701. Alcohol, Tobacco, and Other Drugs (ATOD): Biomedical Basis. 3 Credits.
Course examines neurobiology and biomedical bases of addictive disorders. Students will develop a broad scientific perspective on different classes of substances of abuse and the biological basis of substance dependence.
Requisites: Pre- or corequisite, SOWO 700.
Grading status: Letter grade.

SOWO 702. Human Development in Context. 1.5 Credit.
This course provides an overview of human development in an environmental context, surveying major theoretical frameworks and highlighting the impact of different systems on the development, functioning and health of individuals, families and communities. Course frameworks will include definitions, structural variations, theories, strengths, stressors, and changes that affect functioning needed to carry out practice with clients.
Grading status: Letter grade.

SOWO 705. Mental Health Recovery and Psychiatric Rehabilitation. 1.5 Credit.
The concept of mental health recovery is introduced, exploring theoretical foundations and lived experiences of consumers. Psychiatric rehabilitation is discussed as a framework and set of interventions supporting recovery.
Requisites: Prerequisites, SOWO 500 and 505.
Grading status: Letter grade.

SOWO 709. Special Topics in Human Behavior and Social Environment. 1-6 Credits.
Permission of the Instructor. Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

SOWO 712. Research and Evaluation. 1.5 Credit.
Students will develop knowledge of evidence-based practice, including skills needed to identify, acquire and assess appropriate interventions for practice and basic skills required to evaluate their own social work practice.
Grading status: Letter grade.

SOWO 719. Special Topics in Research. 1-6 Credits.
Permission of the instructor. Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

SOWO 720. Individualized Field Practicum. 1-6 Credits.
(Field fee: $300.)
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

SOWO 730. Social Work and the Law. 3 Credits.
Course provides familiarity with legal processes, legal research, and legal analysis within the context of socio-legal issues important to social work practice.
Grading status: Letter grade.

SOWO 732. Brief History of Oppression & Social Welfare Policy. 1.5 Credit.
This course facilitates students' transition from baccalaureate programs to the Advanced Standing MSW Program. The course will review and integrate selective core baccalaureate content in social policy and oppression.
Grading status: Letter grade.

SOWO 739. Special Topics in Policy. 1-6 Credits.
Permission of the instructor. Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

SOWO 740. Implementing Evidence-Informed Practice w/ Individuals, Families Groups. 3 Credits.
Using a multi-cultural lens, this course introduces students to core evidence-based interventions common to most theoretical approaches. Focus is on building effective direct practice skills applicable across settings and populations.
Requisites: Prerequisite, SOWO 540.
Grading status: Letter grade.

SOWO 741. Social Work Practice in Integrated Health Care. 1.5 Credit.
This course will teach pratical behavioral health skills within primary care settings. Focus will be on application of short-term interventions and psycho-education as part of an inter-professional team.
Grading status: Letter grade.

SOWO 742. The Satir Growth Model: Becoming More Fully Human. 1.5 Credit.
This practice course will enable students to developmand apply Satir Growth Model interventions to guide change in and improve the functioning of individuals, couples, families, and organizations.
Grading status: Letter grade.

SOWO 743. SW at the Interface of the MH & Criminal Justice Systems: Practice, Policy, and Research. 1.5 Credit.
Social workers are often the front-line service providers for mentally ill offenders. This coruse explores social work practice, policy, and research at the interface of criminal justice and behavioral health.
Grading status: Letter grade.

SOWO 750. Cognitive Behavioral Therapy. 1.5 Credit.
This course will use the CBT framework to teach students how to move from an assessment to intervention using the model.
Requisites: Prerequisite, SOWO 540.
Grading status: Letter grade.

SOWO 751. Behavioral Intervention with Children. 1.5 Credit.
This course teaches basic principles of behavior theory and intervention, current applications, and how to assess, design and implement behavior plans for children.
Requisites: Prerequisite, SOWO 540.
Grading status: Letter grade.

SOWO 753. Interpersonal Psychotherapy. 1.5 Credit.
This practice course focuses on interpersonal psychotherapy, an empirically supported intervention for depression in adolescents and adults. Adaptations for other mental health disorders are discussed.
Requisites: Prerequisite, SOWO 540.
Grading status: Letter grade.

SOWO 755. Issues for Contemporary Clinical Practice. 1.5 Credit.
This is a seminar designed to help prepare students for contemporary clinical practice, covering topics such as managed care, independent practice, and self-care.
Requisites: Prerequisite, SOWO 540.
Grading status: Letter grade.

SOWO 758. Differential Diagnosis of Mental Disorders. 1.5 Credit.
This course focuses on the process of conducting a differential diagnosis of mental health disorders using the Diagnostic and Statistical Manual of Mental Disorders-V.
Requisites: Prerequisite, SOWO 540.
Grading status: Letter grade.

SOWO 760. Alcohol, Tobacco, and Other Drugs (ATOD): Clinical Practice. 3 Credits.
permission of the instructor for students lacking the requisites. Students develop knowledge, skills, and attitudes specific to substance use, abuse, and dependency in order to work effectively in a variety of clinical settings with clients experiencing substance-related problems.
Requisites: Pre- or corequisites, SOWO 540 and 700;
Grading status: Letter grade.

SOWO 761. Alcohol, Tobacco, and Other Drugs (ATOD): Social Work Practice with Culturally Diverse Populations. 3 Credits.
permission of the instructor for students lacking the requisites. This advanced practice course provides an overview of the unique problems and needs of diverse populations who misuse ATOD and focuses on the application of culturally sensitive intervention strategies.
Requisites: Pre- or corequisites, SOWO 540 and 700;
Grading status: Letter grade.

SOWO 764. Motivational Interviewing. 1.5 Credit.
This course presents the theoretical basis of motivational interviewing (MI), the principles of this counseling approach, and the key strategies for facilitating effective discussions with persons about behavior change.
Requisites: Prerequisite, SOWO 540.
Grading status: Letter grade.

SOWO 765. Social Work Practice with Groups. 1.5 Credit.
The course is designed to enable students to become more knowledgeable and skillful as direct practice group workers.
Requisites: Pre- or corequisite, SOWO 540.
Grading status: Letter grade.

SOWO 766. Dialectical Behavioral Therapy: Theory and Practice. 1.5 Credit.
This course provides an introduction to Dialectical Behavior Therapy (DBT), exploring both its theoretical underpinnings as well as its practical application.
Requisites: Prerequisite, SOWO 540.
Grading status: Letter grade.

SOWO 767. Differential Diagnosis and Case Formulation in Mental Health Practice. 3 Credits.
Prepares students to take psychiatric histories, conduct mental status examinations, engage in differential diagnosis decision-making using the DSM-5, write mental health reports, and begin case formulation for purpose of treatment planning.
Requisites: Pre- or corequisite, SOWO 540.
Grading status: Letter grade.

SOWO 769. Special Topics in Direct Practice. 1-6 Credits.
Permission of the instructor. Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

SOWO 770. Implementing Evidence-Informed Practice with Organizations and Communities. 3 Credits.
This course provides an introduction to evidence-informed and best practices for program development. Focus is on building effective organizational and community practice skills in implementing new programs and interventions.
Requisites: Prerequisite, SOWO 570.
Grading status: Letter grade.

SOWO 772. Social Work Practice. 1.5 Credit.
Course is a brief overview of direct and macro practice social work. First half will focus on fundamentals of direct practice with individuals, families and groups and review assessment, diagnosis, treatment planning and intervention selection. Second half will review the fundamentals of macro social work practice. Including exposure to methods that groups, organizations and communities utilize to assess communities and address needs of individuals and families, and the impact of interagency functioning on service delivery.
Grading status: Letter grade.

SOWO 790. Population Health Interprofessional Management in a Changing Health Care System. 3 Credits.
Admission to the School of Nursing graduate program or graduate students in any of the Health Affairs Schools with permission of instructor. This interprofessional education course focuses on preparing healthcare professionals with the foundational skills needed to work in teams to effectively collaborate and coordinate care in population health.
Grading status: Letter grade
Same as: NURS 790I.

SOWO 792. Program Development and Proposal Preparation. 1.5 Credit.
In this skills-oriented course, students will learn to apply three approaches to program development and prepare a proposal draft suitable for submission to a foundation or governmental organization.
Requisites: Prerequisite, SOWO 570.
Grading status: Letter grade.

SOWO 793. Asset Development Practice and Policy. 1.5 Credit.
This course explores community-based efforts and social policies to help lower-income individuals and families build wealth through increased access to financial services and asset-building opportunities.
Requisites: Prerequisite, SOWO 570.
Grading status: Letter grade.

SOWO 794. Leadership and Management in Public Human Service Agencies. 3 Credits.
Participants will examine theories, models, and practices for leading and managing in human service agencies (specificially child welfare), emphasizing social work values and intervention methods.
Grading status: Letter grade.

SOWO 799. Special Topics in Macro Practice. 1-6 Credits.
Permission of the instructor. Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

SOWO 810. Evaluation of Social Work Interventions. 3 Credits.
Students apply knowledge of evidence-based practice to evaluation of social work interventions, including development of a detailed proposal to conduct evaluation of specific social work organization and client or service population.
Requisites: Prerequisite, SOWO 510.
Grading status: Letter grade.

SOWO 820. Social Work Practicum III. 6 Credits.
Students apply specialized knowledge to social work practice at an advanced level with individuals, families, small groups, organizations, and/or communities in an agency of a specialized field. (Field fee: $300.)
Requisites: Prerequisites, SOWO 500, 505, 540, and 570.
Grading status: Letter grade.

SOWO 821. Social Work Practicum IV. 6 Credits.
A continuation of SOWO 820, providing opportunities for the students to demonstrate increased ability to assess, plan, administer, and evaluate appropriate social work interventions in a specialized field of practice (Field fee: $300.)
Grading status: Letter grade.

SOWO 831. Addiction and Public Policy: Implications for Practice. 1.5 Credit.
The course will examine alcohol and drug policies, particularly as they relate to the exacerbation and resolution of health and social inequities for those with substance use disorders.
Requisites: Prerequisite, SOWO 530.
Grading status: Letter grade.

SOWO 832. Child Welfare Policy Practice and Advocacy. 1.5 Credit.
This course engages students in the processs of child welfare policy practice and advocacy to formulate, analyze, implement, evaluate, and disseminate evidence-informed policiies and interventions at all system levels.
Requisites: Prerequisite, SOWO 530.
Grading status: Letter grade.

SOWO 834. Advanced Policy Practice. 1.5 Credit.
Advanced Policy Practice focuses on skills development in advanced policy analysis and change at administrative and legislative levels and on multiple levels of advocacy and lobbying strategies.
Requisites: Prerequisite, SOWO 530.
Grading status: Letter grade.

SOWO 835. Poverty Policy. 1.5 Credit.
Course provides students with a framework for advanced policy analysis and strategies for policy change, focusing on national and state poverty policy, focusing on legal, socio-political, and economic factors influencing financing, access, service delivery. Course explores skills and strategies for policy analysis and change.
Requisites: Prerequisite, SOWO 530.
Grading status: Letter grade.

SOWO 836. Health Access and Health Disparities. 1.5 Credit.
Examines factors leading to disparities in health outcomes for persons disadvantaged by income, age, ethnicity, gender, and sexual orientation. Critically evaluates health and social policies aimed at resolving disparities.
Requisites: Pre- or corequisite, SOWO 530.
Grading status: Letter grade.

SOWO 837. Disability Policy. 1.5 Credit.
Using an advanced policy analysis framework, this course focuses on strategies for policy change, national and state policy, and legal and socio-political factors influencing financing, access, and service delivery.
Requisites: Pre- or corequisite, SOWO 530.
Grading status: Letter grade.

SOWO 840. Adult Mental Health: Theory and Practice. 3 Credits.
This course focuses on mental health social work practice with adults, covering assessment and several theoretically based interventions with an emphasis on gaining practice skills.
Requisites: Prerequisites, SOWO 500, 505, and 540.
Grading status: Letter grade.

SOWO 841. Child and Adolescent Mental Health: Theory and Practice. 3 Credits.
This course presents knowledge and practice theories to understand mental health and well-being in children, adolescents and their families. It emphasizes practice skills and theories relevant to assessment and evidenced-based interventions.
Grading status: Letter grade.

SOWO 842. Families: Theory and Practice. 3 Credits.
A review of explanatory and practice theories for understanding and intervening with families and couples.
Requisites: Prerequisites, SOWO 500, 505, and 540.
Grading status: Letter grade.

SOWO 843. Older Adults: Theory and Practice. 3 Credits.
This course fosters understanding of normal aging, illness, and common challenges associated with aging, and also practice skills to treat older adults and their families.
Requisites: Prerequisites, SOWO 500, 505, and 540.
Grading status: Letter grade.

SOWO 845. Health: Theory and Practice. 3 Credits.
This course focuses on social work practice in healthcare covering the social context of health problems, and the theories and interventions that facilitate prevention of and coping with health problems.
Requisites: Prerequisites, SOWO 500, 505, and 540.
Grading status: Letter grade.

SOWO 850. School Social Work Practice. 3 Credits.
This course examines public school social work policy and practice emphasizing an ecological approach within the school-family-community context.
Requisites: Prerequisite, SOWO 540.
Grading status: Letter grade.

SOWO 853. Approaches to Brief Treatment. 3 Credits.
This advanced practice elective course covers theories and application of three models of brief psychotherapy. Skill building, critical thinking, and utilization of empirical support are emphasized.
Requisites: Prerequisite, SOWO 540.
Grading status: Letter grade.

SOWO 854. Antisocial Behavior in Childhood and Early Adolescence: Theory and Practice. 3 Credits.
This course explores theories and interventive methods related to practice with children who have antisocial, aggressive behavior. Emphasis is placed on using protective/risk factors to design multisystemic service strategies.
Requisites: Prerequisite, SOWO 540.
Grading status: Letter grade.

SOWO 855. Treatment of Trauma and Violence. 3 Credits.
This course provides an in-depth analysis of the etiology, effects, and dynamics of family violence, as well as the identification of appropriate assessment and treatment strategies.
Requisites: Prerequisite, SOWO 540.
Grading status: Letter grade.

SOWO 856. Care of the Dying and Bereaved. 3 Credits.
This interdisciplinary clinical course addresses issues and practice models relating to terminal illness and bereavement faced throughout the life span.
Requisites: Prerequisite, SOWO 540.
Grading status: Letter grade.

SOWO 860. Child Welfare Perspectives and Practices. 3 Credits.
Focus on the knowledge, skills, and critical thinking necessary for effective practice in child welfare. Students examine their own perspectives regarding pertinent research, current events, and initiatives in the state.
Grading status: Letter grade.

SOWO 874. Administrative and Management: Theory and Practice. 3 Credits.
This course explores contemporary theories, models, and practices for managing human service organizations, emphasizing skills in team building, motivation, organizational learning strategies, and cultural competence with a diverse staff.
Requisites: Prerequisites, SOWO 500, 505, and 570.
Grading status: Letter grade.

SOWO 875. Community: Theory and Practice. 3 Credits.
Engages students in examining theory and planning strategies for community practice within complex political and economic environments, emphasizing values and intervention methods.
Requisites: Prerequisites, SOWO 500, 505, and 570.
Grading status: Letter grade.

SOWO 880. Sustainable Development. 3 Credits.
Examines perspectives and models of sustainable development. Students will analyze a project and present a participatory plan for engaging in sustainable development work.
Requisites: Prerequisite, SOWO 570.
Grading status: Letter grade.

SOWO 881. Development Theory and Practice in Global Settings. 3 Credits.
This course is designed to assist students to learn skills, methods, theory, and research in development practice in global settings. Focus is on competent practice with marginalized populations globally.
Grading status: Letter grade.

SOWO 882. Citizen Participation and Volunteer Involvement. 3 Credits.
Examines the role of grassroots organization in advocacy, self-help and social development, the involvement of citizens in public planning, and the development of volunteer programs.
Requisites: Prerequisite, SOWO 570.
Grading status: Letter grade.

SOWO 883. Marketing and Fundraising for Nonprofit Organizations. 3 Credits.
This course helps students to develop skills and practices associated with marketing and fundraising strategies for nonprofit organizations at the macro level.
Requisites: Prerequisite, SOWO 570.
Grading status: Letter grade.

SOWO 884. Leadership in Nonprofit Organizations. 3 Credits.
An in-depth analysis of the executive role in nonprofit organizations, particularly in leadership transitions, strategic planning, board development, policy administration, governance, employee relations, and resource planning and acquisition.
Requisites: Prerequisite, SOWO 570.
Grading status: Letter grade.

SOWO 885. Financial Management of Nonprofit Organizations. 3 Credits.
Provides basic financial skills for leaders of nonprofits, including bookkeeping fundamentals, interpreting financial statements, budgeting, cash management and investment, and legal compliance.
Requisites: Prerequisites, SOWO 517 and 570.
Grading status: Letter grade
Same as: PUBA 757.

SOWO 900. Foundations for Theory Construction. 3 Credits.
A critical and historical understanding of social work knowledge, values, and intervention provides students with a foundation for theory construction.
Grading status: Letter grade.

SOWO 910. Research Methods in Social Intervention. 3 Credits.
An introduction to the basic principles of research for planning and evaluating social interventions. Topics include problem formulation, design, measurement, analysis, and the application of findings to theory and practice.
Requisites: Prerequisite, SOWO 510.
Grading status: Letter grade.

SOWO 911. Introduction to Social Statistics and Data Analysis. 3 Credits.
Designed to explore basic principles and to provide advanced instruction in data analysis, including the construction and analysis of tables, statistical tests, and an introduction to the use of computer programs.
Requisites: Prerequisite, SOWO 510.
Grading status: Letter grade.

SOWO 912. Research Practicum I. 3 Credits.
Students develop independent research competence through work on a research project under the direction of an experienced researcher.
Requisites: Prerequisite, SOWO 911.
Grading status: Letter grade.

SOWO 913. Advanced Research Methods in Social Intervention. 3 Credits.
Students build advanced competence in research design, data collection, data analysis, and statistics by analyzing exemplary social work research and presenting independent learning projects within specialized areas of study.
Requisites: Prerequisites, SOWO 900 and 940.
Grading status: Letter grade.

SOWO 914. Measurement in Social Intervention Research. 3 Credits.
Course deals with quantitative and qualitative measurement strategies. Readings focus on theoretical and conceptual foundations of qualitative and quantitative measurement. Students develop skill through two field studies.
Requisites: Prerequisites, SOWO 910 and 911.
Grading status: Letter grade.

SOWO 915. Research Practicum II. 1-6 Credits.
Continuation of Research Practicum I.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

SOWO 916. Structural Equation Modeling. 3 Credits.
In this course, students will learn fundamental concepts and skills to conduct structural equation modeling and will learn how to apply these techniques to social work research.
Grading status: Letter grade.

SOWO 917. Longitudinal and Multilevel Analysis. 3 Credits.
This course introduces statistical frameworks, analytical tools, and social behavioral applications of three types of models: event history analysis, hierarchical linear modeling (HLM), and growth curve analysis.
Grading status: Letter grade.

SOWO 918. Applied Regression Analysis and Generalized Linear Models. 3 Credits.
Permission of the instructor. This course introduces statistical frameworks, analytical tools, and social behavioral applications of OLS regression model, weighted least-square regression, logistic regression models, and generalized linear models.
Grading status: Letter grade.

SOWO 919. Special Topics in Doctoral Research. 1-6 Credits.
Permission of the instructor. Topic determined by instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

SOWO 920. Special Topics in Social Work Doctoral Studies. 1-6 Credits.
Permission of the instructor. Topic determined by the instructor and announced in advance.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

SOWO 921. Qualitative Research Methods. 3 Credits.
This course will introduce the application of qualitative research methods for social work research.
Grading status: Letter grade.

SOWO 922. Advanced Topics in Causal Inference: Propensity Score and Related Models. 3 Credits.
This course focuses on advanced topics in causal inference by reviewing four recent methods developed for observational studies and evaluation of quasi-experimental programs.
Grading status: Letter grade.

SOWO 923. Systemic Reviews and Introduction to Meta-Analysis. 3 Credits.
Students will learn cutting-edge methods of research synthesis and will prepare and submit a systematic review to a peer reviewed professional journal before the semester ends.
Grading status: Letter grade.

SOWO 940. Development of Social Intervention Models. 3 Credits.
A systematic approach to the design, implementation, and evaluation of social interventions provides the framework for developing models that address a range of social issues and needs.
Requisites: Prerequisite, SOWO 900.
Grading status: Letter grade.

SOWO 941. Teaching Practicum. 3 Credits.
This practicum provides a range of supervised classroom or training opportunities designed to prepare advanced doctoral students for faculty positions in undergraduate- and graduate-level social work education.
Grading status: Letter grade.

SOWO 994. Doctoral Research and Dissertation. 3 Credits.
Dissertation work.
Repeat rules: May be repeated for credit.

DEPARTMENT OF SOCIOLOGY (GRAD)

Contact Information

Department of Sociology
Visit Program Website (http://sociology.unc.edu)

Kenneth Andrews, Chair

The Department of Sociology offers the master of arts and doctor of philosophy degrees in sociology. Students receive training that equips them for careers in both teaching and research. All sociology students take basic coursework in sociological theory, research methods and statistics, and substantive areas. The program emphasizes balanced training and the integration of theory, method, and substantive knowledge. Detailed information on graduate degree procedures is available online at the department's Web site (http://sociology.unc.edu). For further information, including information about financial aid for students, contact the department's administrative assistant for student services.

The department's main concentrations of faculty research interest and graduate training are in demography and population, stratification and social inequality, cultural and political sociology, research methods and social statistics, and labor force and complex organizations.

Graduate students making adequate progress receive financial assistance during the first five years of the program. Sources of aid include teaching assistantships, research assistantships, and nonservice fellowships.

Department faculty work closely with the Carolina Population Center, the Odum Institute for Research in Social Science, and other research centers and institutes on campus. The department also sponsors and edits Social Forces, one of the leading sociology journals in the world.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Howard E. Aldrich (38), Formal Organizations, Race and Ethnic Relations, Inequality, Evolutionary Theory, Social Networks
Kenneth T. Andrews (64), Social Movements, Political Sociology, Organizations, Race and Ethnic Relations, Environment
Kenneth A. Bollen (43), Comparative Political Structures, Statistics, International Development
Barbara Entwisle (46), Social Demography, Methods, Community, Environment
Elizabeth Frankenberg, Demography, Health, Illness, Medical Sociology
Guang Guo (48), Biosocial Interactions, Social Statistics, Demography
Jacqueline Hagan (66), Migration, Religion, Race and Ethnicity
Kathleen M. Harris (6), Social Demography, Family and Child Well-Being, Poverty, Public Policy
Robert Hummer (5), Demography, Population Health, Aging and the Life Course
Arne L. Kalleberg (47), Work, Organizations, Occupations, Social Stratification, Economic Sociology
Charles Kurzman (49), Political Sociology, Social Movements, International Development, Comparative and Historical, Social Theory, Islamic Studies
Ted Mouw (51), Social Stratification, Demography, Economic Sociology
Lisa D. Pearce (62), Family, Demography, Religion
Andrew J. Perrin (81), Political Sociology, Sociology of Culture, Sociology of Work, Social Theory, Social Movements
Karolyn Tyson (57), Sociology of Education, Qualitative Methods, Social Inequality, Social Psychology
Yang Yang (73), Population, Sociology of Health and Medicine, Methods and Models, Stratification

Associate Professors

Yong Cai (72), Social Demography, Sociology of Health, Chinese Society, Comparative Historical Sociology, Research Methodology
Neal Caren (68), Social Movements/Collective Action

Assistant Professors

Taylor Hargrove, Sociology of Health, Racial/Ethnic, Gender, and Skin Tone Stratification, Aging and the Life Course
Mosi Ifatunji (65), Race and Ethnic Identities, Immigration
Liana J. Richardson (82), Health/Medical Sociology, Race and Ethnicity
Kate Weisshaar (58), Gender, Family, Inequality, Quantitative Methods

Research Professor

Glen H. Elder Jr., Life Course, Social Change, Family, Human Development

Teaching Professor

Kathleen Fitzgerald, Race, Gender, Sexuality, Social Movements, Food Justice, and Pedagogy

Joint Appointments/Adjunct Faculty

Thurston Domina, Associate Professor, Educational Policy and Sociology
Carmen Gutierrez, Assistant Professor, Public Policy and Sociology
Gail Henderson, Medical Sociology (Including Social and Economic Determinants of Health and Health Services Utilization), Health and Health Care in China, Social Contexts and Factors Related to Research Ethics
James Johnson, Public Policy, Urban Sociology, Social Geography
John D. Kasarda, Human Ecology, Urban Sociology, Public Policy
Douglas Lauen, Associate Professor, Education Policy
John D. Stephens, Political Sociology, Political Economy, Comparative and Historical
Zeynep Tufekci, Social Impacts of Technology, Privacy and Surveillance, Inequality, Research Methods and Complex Systems
Catherine Zimmer, Quantitative Methodology, Formal Organizations and Sociology of Work

Professors Emeriti

Judith Blau
M. Richard Cramer
Sherryl Kleinman
S. Philip Morgan
Anthony Oberschall
John Shelton Reed
Ron Rindfuss
Peter Uhlenberg

SOCI

Advanced Undergraduate and Graduate-level Courses

SOCI 410. Formal Organizations and Bureaucracy. 3 Credits.
Varieties of organizational forms, their structures and processes; creation, persistence, transformation, and demise; role of organizations in contemporary society.
Grading status: Letter grade
Same as: MNGT 410.

SOCI 411. Social Movements. 3 Credits.
Examines the origins, dynamics, and consequences of protest and social movements including historical and contemporary movements from the United States and around the globe. Students may not receive credit for both SOCI 413 and 411.
Gen Ed: SS.
Grading status: Letter grade
Same as: PWAD 411.

SOCI 412. Social Stratification. 3 Credits.
Analysis of social structure and stratification in terms of class, status, prestige, and rank. Attention to social roles of elites, professionals, the middle class, and the working class and to comparative topics.
Grading status: Letter grade
Same as: MNGT 412.

SOCI 413. Social Movements, Experiential. 3 Credits.
Examines the origins, dynamics, and consequences of protest and social movements including historical and contemporary movements from the U.S. and around the globe. Substantial field work for experiential education. Students may not receive credit for both SOCI 413 and SOCI 411.
Gen Ed: SS, EE- Service Learning.
Grading status: Letter grade.

SOCI 414. The City and Urbanization. 3 Credits.
The city as a social, spatial, and political-economic phenomenon in the modern world. Analysis of urban demographic trends, spatial characteristics and economic functions. Substantive topics include segregation, social turmoil, unemployment, fiscal problems, suburbanization, and urban public policy. Students may not receive credit for both SOCI 414 and SOCI 417.
Gen Ed: SS.
Grading status: Letter grade.

SOCI 415. Economy and Society. 3 Credits.
Examination of the structure and operation of institutions where economy and society intersect and interact, such as education, industrial organizations, on-the-job training, labor markets, and professional associations. Emphasis on the contemporary United States, with selected comparisons with Western Europe and Japan.
Grading status: Letter grade
Same as: MNGT 415.

SOCI 416. Comparative Perspectives on Contemporary International Migration and Social Membership. 3-4 Credits.
This course provides a special focus on international migration and social membership/citizenship across a number of advanced industrial immigrant-receiving states.
Gen Ed: EE- Service Learning, GL.
Grading status: Letter grade.

SOCI 417. The City and Urbanization, Experiential Education. 3 Credits.
The city as a social, spatial, and political-economic phenomenon in the modern world. Analysis of urban demographic trends, spatial characteristics, and economic functions. Substantive topics include segregation, social turmoil, unemployment, fiscal problems, suburbanization, and urban public policy. Students may not receive credit for both SOCI 414 and SOCI 417.
Gen Ed: SS, EE- Service Learning.
Grading status: Letter grade.

SOCI 418. Contemporary Chinese Society. 3 Credits.
Designed to help students read complex pictures of contemporary China and to understand how China's rise affected people's lives, both inside and outside of China, from a sociological perspective. The course does not assume any background in Chinese studies.
Gen Ed: BN.
Grading status: Letter grade.

SOCI 419. Sociology of the Islamic World. 3 Credits.
Investigates issues such as tradition and social change, religious authority and contestation, and state building and opposition in Muslim societies in the Middle East and around the world.
Gen Ed: SS, BN.
Grading status: Letter grade.

SOCI 420. Political Sociology. 3 Credits.
Analysis of the reciprocal influences of state and social organizations upon each other; the social bases of political authority and stability, of revolution and counterrevolution.
Grading status: Letter grade.

SOCI 421. Enironmental Sociology. 3 Credits.
This course focuses on the interaction between humans and their natural environments. Students will investigate the causes and consequences of environmental problems and their connections to dominant economic and political structures, cultural values, population dynamics, resource consumption, technologies, and systems of inequality.
Gen Ed: SS.
Grading status: Letter grade.

SOCI 422. Sociology of Mental Health and Illness. 3 Credits.
Examines the uniqueness of the sociological perspective in understanding mental health and illness. Draws upon various theoretical perspectives to best understand patterns, trends, and definitions of mental health and illness in social context. Focuses on how social factors influence definitions, perceptions, patterns, and trends of mental health and illness.
Gen Ed: SS.
Grading status: Letter grade.

SOCI 423. Sociology of Education, Experiential Education. 3 Credits.
An overview of theory and research on education and schooling, with an emphasis on inequalities in educational opportunities, education as a social institution, and the changing context of schools and schooling. Substantial field work for experiential education. Students may not receive credit for both SOCI 423 and SOCI 426.
Gen Ed: SS, EE- Service Learning.
Grading status: Letter grade.

SOCI 424. Law and Society. 3 Credits.
A sociological analysis of comparative legal systems, the role of law in social change and in shaping social behavior. Topics may include the legal profession, property distribution, and the role of law in achieving racial and sexual justice.
Grading status: Letter grade.

SOCI 425. Family and Society, Junior/Senior Section. 3 Credits.
A special version of SOCI 130 for juniors, seniors, and beginning graduate students. Students may not receive credit for both SOCI 425 and SOCI 130.
Grading status: Letter grade.

SOCI 426. Sociology of Education. 3 Credits.
An overview of theory and research on education and schooling, with an emphasis on inequalities in educational opportunities, education as a social institution, and the changing context of schools and schooling. Students may not receive credit for both SOCI 423 and SOCI 426.
Gen Ed: SS.
Grading status: Letter grade.

SOCI 427. The Labor Force. 3 Credits.
Supply and characteristics of labor and of jobs, including industrial and occupation changes, education and mobility of labor, and changing demography of the workforce.
Gen Ed: SS.
Grading status: Letter grade
Same as: MNGT 427.

SOCI 428. Sociology of Art. 3 Credits.
Connections between artworks, art theory, and social theory are examined. Approaches in the fine arts and the social sciences are examined.
Gen Ed: SS.
Grading status: Letter grade.

SOCI 429. Religion and Society. 3 Credits.
Sociological analysis of group beliefs and practices, both traditionally religious and secular, through which fundamental life experiences are given coherence and meaning. This course is a special version of SOCI 129 for juniors and seniors that explores the meanings and experiences of religion, as well as religion's role in communities, institutions, and societies through hands-on intensive research experience. Students may not receive credit for both SOCI 129 and SOCI/RELI 429.
Gen Ed: SS.
Grading status: Letter grade
Same as: RELI 429.

SOCI 431. Aging. 3 Credits.
The process of aging from birth to death, with a concentration on the later years of life, examined from a broad perspective. Topics include individual change over the life-course, the social context of aging, and the aging of American society.
Gen Ed: SS.
Grading status: Letter grade.

SOCI 433. Immigration in Contemporary America. 3 Credits.
This course introduces students to reasons why people migrate, how citizens respond to that migration, how the federal government regulates migration, and how local communities manage the settlement of newcomers. By the end of the course students should have a solid understanding of major debates in the study of immigration.
Grading status: Letter grade.

SOCI 442. Conflict and Bargaining. 3 Credits.
Conflict and conflict-resolution behavior. Applications to labor-management relations, family, sports, community politics, international relations.
Grading status: Letter grade
Same as: PWAD 442.

SOCI 444. Race, Class, and Gender. 3 Credits.
Conceptualizations of gender, race, and class and how, separately and in combination, they are interpreted by the wider society. Emphasis on how black and working-class women make sense of their experiences at work and within the family.
Grading status: Letter grade
Same as: WGST 444.

SOCI 445. Sociology of Emotions. 3 Credits.
The course examines how emotions are organized within social groupings and institutions. Differences in socialization by gender, ethnicity, social class, and age will be explored.
Grading status: Letter grade.

SOCI 450. Theory and Problems of Developing Societies. 3 Credits.
Theories concerning the development process (motivational vs. institutional economics vs. political and social development; similarity of sequential states and outcomes) will be related to policy problems facing the developing nations.
Gen Ed: SS, BN.
Grading status: Letter grade.

SOCI 453. Social Change in Latin America. 3 Credits.
Introduction to Latin American ideologies and values; economic and demographic changes; major pressure groups (old elites, entrepreneurs, peasants and working classes, military and intellectuals); and relations with the United States.
Gen Ed: SS, BN.
Grading status: Letter grade.

SOCI 460. Contemporary Social Theory. 3 Credits.
Analysis of current problems in general social theory; action and structure, justice and equity, social change and reproduction. Contrast and evaluation of leading approaches to solutions.
Requisites: Prerequisite, SOCI 250.
Grading status: Letter grade.

SOCI 468. United States Poverty and Public Policy. 3 Credits.
This course examines issues of poverty and social policy, single-mother families, the welfare debate, and homelessness.
Grading status: Letter grade.

SOCI 469. Health and Society. 3 Credits.
The primary objective of the course is to explain how and why particular social arrangements affect the types and distribution of diseases, as well as the types of health promotion and disease prevention practices that societies promote.
Gen Ed: SS.
Grading status: Letter grade.

SOCI 470. Human Rights. 3 Credits.
Human rights are inherent in the advance of peace, security, prosperity, and social equity. They are shared by the global community, yet require local embedding. Course includes a service-learning component.
Gen Ed: EE- Service Learning.
Grading status: Letter grade.

SOCI 481. Managing International Conflict. 3 Credits.
This course introduces the principles of international cooperation and conflict resolution; theories of how international agreements develop or break down; and the logic of mediation, arbitration, and negotiation.
Grading status: Letter grade.

SOCI 620. Aging and Cohort Analysis in Social and Epidemiologic Research: Models, Methods, and Innovations. 3 Credits.
Required preparation, basic statistics courses. This seminar introduces guidelines for conducting aging and cohort analysis in social and epidemiologic research in which time and change are concerns. Uses three common research designs with an emphasis on new analytic models and methods.
Grading status: Letter grade.

SOCI 691H. Senior Honors Research and Seminar. 3 Credits.
Permission of the department. SOCI 691H is required of senior honors candidates. Individual student research (under supervision of an advisor). Weekly seminar to discuss work on honors thesis, as well as special topics in sociology.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

SOCI 692H. Senior Honors Research and Seminar. 3 Credits.
Permission of the department. Individual student research under supervision of an advisor. Weekly seminar to discuss work on honors thesis as well as special topics in sociology.
Requisites: Prerequisite, SOCI 691H.
Gen Ed: CI, EE- Mentored Research.
Grading status: Letter grade.

SOCI 696. Undergraduate/Graduate Study in Sociology. 3-4 Credits.
Permission of the instructor. Graduate study in sociology for undergraduate students. Undergraduate students taking a 700- or 800-level course in sociology register via this course and complete all requirements for the associated graduate course.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 12 total credits. 4 total completions.
Grading status: Letter grade.

Graduate-level Courses

SOCI 700. History of Social Thought. 3 Credits.
Graduate standing in sociology or permission of the instructor. Historic social ideas of Western culture are considered against a background of general cultural analysis in terms of systematic theory. Required of all graduate degree candidates in sociology.
Grading status: Letter grade.

SOCI 707. Measurement and Data Collection. 4 Credits.
Provides an introduction to measurement theory and a review of various methods of data-gathering. Gaining experience with a variety of techniques of measurement and preparing a pretested research proposal are required for all students.
Grading status: Letter grade.

SOCI 708. Statistics for Sociologists. 4 Credits.
Provides an introduction to probability theory, descriptive statistics, inferential statistics, and the algebra of expectations. Emphasis is on elements useful to research sociologists, including bivariate regression and correlation.
Grading status: Letter grade.

SOCI 709. Linear Regression Models. 4 Credits.
The course presents regression analysis and related techniques. The major topics are the assumptions of the regression model, dummy variables and interaction terms, outlier diagnostics, multicollinearity, specification error, heteroscedasticity and autocorrelation. The final section introduces path analysis, recursive models, and nonrecursive systems.
Grading status: Letter grade.

SOCI 711. Analysis of Categorical Data. 3 Credits.
Permission of the instructor. Introduction to techniques and programs for analyzing categorical variables and nonlinear models. Special attention is given to decomposition of complex contingency tables, discriminant function analysis, Markov chains, and nonmetric multidimensional scaling.
Grading status: Letter grade.

SOCI 715. Seminar on Social Networks. 3 Credits.
Permission of the instructor. Theoretical and substantive issues in social network analysis. Focus is on models of social structure.
Grading status: Letter grade.

SOCI 717. Structural Equations with Latent Variables. 3 Credits.
This course examines models sometimes referred to as LISREL models. Topics include path analysis, confirmatory factor analysis, measurement error, model identification, nonrecursive models, and multiple indicators.
Requisites: Prerequisite, SOCI 708; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

SOCI 718. Longitudinal and Multilevel Data Analysis. 3 Credits.
This course provides an introduction to event history analysis or survival analysis, random effects and fixed effects models for longitudinal data, multilevel models for linear and discrete multilevel data, and growth curve models.
Requisites: Prerequisite, SOCI 709 or 711.
Grading status: Letter grade.

SOCI 720. Participant Observation and In-Depth Interviewing. 3 Credits.
Students will learn the methods of participant observation and in-depth interviewing. Each student will collect data (provide detailed fieldnotes and transcriptions of interviews) in one group or setting for the duration of the course. Such topics as gaining access, ethics of research, and analysis of data will be covered.
Grading status: Letter grade.

SOCI 753. Experimental Design in Sociology. 3 Credits.
Permission of the instructor. Statistical aspects of experimental designs, with emphasis on applied problems involved in executing a statistically sound design.
Grading status: Letter grade.

SOCI 754. Survey Sampling. 4 Credits.
Permission of the instructor. The different sampling techniques are discussed. Major emphasis on planning of large-scale sample surveys rather than on statistical theory.
Grading status: Letter grade.

SOCI 760. Data Collection Methods. 3 Credits.
Reviews alternative data collection techniques used in surveys, concentrating on the impact these techniques have on the quality of survey data. Topics covered include errors associated with nonresponse, interviewing, and data processing.
Grading status: Letter grade.

SOCI 761. Questionnaire Design. 3 Credits.
Examines the stages of questionnaire design including developmental interviewing, question writing, question evaluation, pretesting, questionnaire ordering, and formatting. Reviews the literature on questionnaire construction. Provides hands-on experience in developing questionnaires.
Grading status: Letter grade.

SOCI 762. Case Studies in Surveys. 3 Credits.
A number of external speakers from government and industry will describe various problems they encounter in surveys. Students will be challenged to develop proposals for addressing the problems, citing the literature as appropriate.
Grading status: Letter grade.

SOCI 763. Survey Computing. 1 Credit.
Introduces basic statistical concepts and practices emphasizing the analysis of real data. Provides training in the use of the SAS statistical analysis system and the practical problems of stratification, clustering, and weighting in survey analysis.
Grading status: Letter grade.

SOCI 800. Current Issues in Social Theory. 3 Credits.
An examination of selected recent work of general significance in sociology. Themes vary.
Grading status: Letter grade.

SOCI 801. Evolutionary Theory. 3 Credits.
Introduction to the new evolutionary theory and associated research. .
Grading status: Letter grade.

SOCI 802. Social Psychological Theory. 3 Credits.
Introduction to basic theoretical approaches in social psychology, including social learning, social exchange, symbolic interaction, cognitive consistency, and affect control.
Grading status: Letter grade.

SOCI 803. Human Ecology. 3 Credits.
Examination of how human populations adapt to their environments. Emphasis on linkages among population, organization, environment, and technology. Research applications of this approach to urban communities and organizations.
Grading status: Letter grade.

SOCI 804. Marx and Marxism. 2 Credits.
Brief exposition and evaluation of Marx's theory of human nature, societal change and evolution, class, the state, family, and other institutions. Summary of dependency theory and critical theory.
Grading status: Letter grade.

SOCI 806. Principles of Theorizing. 3 Credits.
This course in metatheory analyzes methods of theorizing. It examines the criteria for constructing and evaluating scientific theories developed by philosophers of science and applies them to social theorizing. The hypothetico-deductive model of theorizing is contrasted with other theoretical approaches.
Grading status: Letter grade.

SOCI 807. Major Sociological Theories. 0.5-21 Credits.
Examination of selected writing, concepts, and issues of a major sociological theory or theoretical approach.
Grading status: Letter grade.

SOCI 808. Macrosociological Theory. 3 Credits.
The objective of the course is to illustrate three aspects of macrosociological theory: 1) the conception of macrosociology, 2) the structural approach in sociology and 3) hypothetico-deductive theorizing. A hypothetico-deductive macrostructural theory developed by the instructor is analyzed, and extensive empirical tests of the theory are presented.
Grading status: Letter grade.

SOCI 810. Social Movements. 3 Credits.
The structure and dynamics of social movements and their societal environment, with special reference to sociopolitical movements of minority and low status groups in industrialized and third world societies.
Grading status: Letter grade.

SOCI 811. Seminar in Political Sociology. 3 Credits.
The relationships between social structure and political decisions. Regimes and social structure; bureaucracies, political associations, and professions; science and politics; closed and open politics; political movements and change.
Grading status: Letter grade
Same as: POLI 811.

SOCI 812. Civil Society. 1-3 Credits.
Under the conditions of globalization, civil society takes on new and different meanings. Course examines what the term means and how it is applied.
Grading status: Letter grade.

SOCI 813. Comparative Welfare States. 3 Credits.
This course examines the development, achievements, present crisis, and future of welfare states in advanced industrial democracies.
Grading status: Letter grade
Same as: POLI 813.

SOCI 814. Comparative and Historical Analysis Exploration. 3 Credits.
Exploration and use of techniques for the comparative study of social processes and historical events. Special attention is devoted to methodologies that facilitate the collection, analysis, and interpretation of historical and/or comparative phenomena.
Grading status: Letter grade.

SOCI 816. Influential Works in Democracy. 3 Credits.
The course covers the major traditions of democratic theory from ancient Greece to the present, ethnographies on political organization, and 19th- and 20th-century observations on democracy.
Grading status: Letter grade
Same as: POLI 816.

SOCI 818. Race and Ethnicity. 3 Credits.
This course reviews the historical and contemporary sociological literature on race and ethnicity. Students will gain an advanced state-of-the-art understanding of how racial and ethnic groups emerge and evolve, how these constructs shape societies, how they influence intergroup relations, and their role in identity formation.
Repeat rules: May be repeated for credit. 3 total credits. 1 total completions.
Grading status: Letter grade.

SOCI 820. Seminar in Marriage and the Family. 3 Credits.
Introduces students to a wide range of studies in the sociology of family, to develop familiarity with the empirical, theoretical, and methodological foundations of family research in sociology. Examines demographic trends; marriage and family relationships; race/ethnicity; poverty and social class; work/family issues; childbearing and rearing; and mate selection.
Grading status: Letter grade.

SOCI 821. The Life Course. 3 Credits.
Provides an intense introduction to the life course as a theoretical orientation and methodology (logic of inquiry).
Grading status: Letter grade.

SOCI 822. Sociological Theories of Aging and the Adult Life Course. 3 Credits.
Overview and critical assessment of sociological theory applied to aging, including explicit theories of aging. The course examines the historical development of the field and considers the nature of theory development.
Grading status: Letter grade.

SOCI 823. Integrating Social and Biological Perspectives on Human Health. 3 Credits.
Student will learn key theories and methodological approaches for how social processes, socio-spatial organization, and social inequality are associated with health patterns, changes, and disparities; theories/approaches for studying human health from a biological perspective; and strategies using integrated social and biological research perspectives and address advantages and challenges.
Grading status: Letter grade.

SOCI 825. Aging and Cohort Analysis in Social and Epidemiologic Research. 3 Credits.
This seminar surveys the major methodological tools and empirical studies of aging and cohort analysis that are of enduring importance to the understanding of social change, epidemiologic trends, and related population and life course processes and dynamics. It aims to provide useful guidelines on how to conduct such analysis. It first introduces the theoretical background and principles of the aging and cohort analysis paradigm.
Grading status: Letter grade.

SOCI 826. Health and Developmental Trajectories From Adolescence into Adulthood. 3 Credits.
Graduate seminar that integrates theory and research on health and developmental trajectories across the early life course using the design and data from the National Longitudinal Study of Adolescent to Adult Health (Add Health). Within the social and epidemiology life course frameworks, this course facilitates student research using Add Health.
Repeat rules: May be repeated for credit. 3 total credits. 1 total completions.
Grading status: Letter grade.

SOCI 830. Demography: Theory, Substance, Techniques, Part I. 3 Credits.
A basic introduction to the discipline of demography. Materials covered include population history, data sources, mortality and fertility trends, and differentials and techniques of analysis.
Grading status: Letter grade.

SOCI 831. Demography: Theory, Substance, Techniques, Part II. 3 Credits.
A continuation of SOCI 830. Materials covered include population growth and stable population theory, migration and distribution, population policy, and population estimates and projections.
Grading status: Letter grade.

SOCI 832. Migration and Population Distribution. 3 Credits.
Treats migration trends, patterns, and differentials and their effects on population distribution in continental and regional areas. Attention is given to theoretical and methodological problems in the study of population movement.
Grading status: Letter grade.

SOCI 833. Socioeconomic Factors in Fertility. 3 Credits.
Study of fertility differentials by social and economic factors, changes over time, the manner in which these factors affect fertility, and the implications thereof for fertility-control programs.
Grading status: Letter grade.

SOCI 835. Mortality: Social Demographic Perspectives. 3 Credits.
This advanced seminar covers mortality date and measurement, the inequality of death, trends in morbidity and mortality, and explanations of mortality decline. Social demographic perspectives receive primary emphasis.
Requisites: Prerequisite, SOCI 830; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

SOCI 836. Social Gerontology. 3 Credits.
Permission of the instructor. The study of the aged in our society.
Grading status: Letter grade.

SOCI 840. Social Attitudes. 3 Credits.
Basic theories and methods in attitude research, with special attention to attitude dynamics and social relations.
Grading status: Letter grade.

SOCI 841. Social Structure and Personality. 3 Credits.
The generic processes by which individuals become members of a society, with emphasis on the influence of social structure on socialization and the patterning of personality.
Grading status: Letter grade.

SOCI 842. Seminar in Socialization and Group Process. 3 Credits.
Permission of the instructor. Analysis of theoretical issues and empirical research relevant to socialization. Special emphasis upon group process effects on the evolution of the social self, the "fit" between personality and role, and other issues.
Grading status: Letter grade.

SOCI 843. Seminar in Social Control and Deviance. 3 Credits.
Permission of the instructor. The relation of social norms to conforming and deviant behavior. Types of social and personal controls. Theoretical and research problems are reviewed.
Grading status: Letter grade.

SOCI 850. Social Stratification. 3 Credits.
Analysis of major theories of and approaches to the study of social inequality, with attention to how the various theories and approaches are operationalized. Focus on recent research in labor markets and worldwide inequality.
Grading status: Letter grade.

SOCI 851. Sociology of Gender. 3 Credits.
Reviews theory on variation in men's and women's gender roles, with emphasis on industrialized societies and women's roles.
Grading status: Letter grade
Same as: WGST 851.

SOCI 852. Ethnicity, Race, and Education. 1-21 Credits.
Emerging new theory and research paradigms in the sociology of education are reviewed. The course covers the following: racial and ethnic variation, parenting, contextual variation, peer influence, and school variation.
Grading status: Letter grade.

SOCI 853. Justice and Inequality: Selected Topics. 1-21 Credits.
Requires permission of the instructor. Examination of selected issues regarding societal, economic, and political inequality and questions of justice in the United States and Western Europe.
Grading status: Letter grade.

SOCI 854. Seminar in Urban Sociology. 3 Credits.
Theory and research in the study of the location and growth of urban areas, the effect urban areas have upon behavior, and the study of social behavior in different urban subareas. Each member of the seminar completes a project interrelating theory and research.
Grading status: Letter grade.

SOCI 855. Poverty in America. 3 Credits.
This graduate seminar will study trends, causes, and consequences of poverty in America, covering the topics of single-mother families, child poverty, low-wage work, immigrant families, and welfare reform and social policy.
Grading status: Letter grade.

SOCI 860. Sociology of Organizations. 3 Credits.
Permission of the instructor. Structural features of organizations. Behavior in organizations. Organizational career patterns. Comparative analysis of structure, behavior, and careers in different types of organizations. Interorganization and organization-environment relations.
Grading status: Letter grade.

SOCI 861. Occupations and Work. 3 Credits.
The changing occupational system. Structural types of labor markets. Occupational organization, role sets, power relations, careers, and satisfaction in different types of labor markets and occupations.
Grading status: Letter grade.

SOCI 862. Health Organizations and Occupations. 3 Credits.
Considers various treatment settings, socialization and job performance of health workers, patienthood, the relation between organizational structure and effectiveness, and professional self-regulation. .
Grading status: Letter grade.

SOCI 863. Sociology of Health, Illness, and Healing. 3 Credits.
This seminar provides a broad introduction to the sociology of health and illness. Classic and contemporary perspectives, as well as empirical evidence, are covered. Questions such as, "how (and why) are health and illness socially constructed and socially distributed?" and "what can be done to address these phenomena?" are examined.
Grading status: Letter grade.

SOCI 870. Sociology of Culture. 3 Credits.
Focuses on substantive and theoretical issues in this field and their intellectual origins. Topics include organizations, art, religion, science, class, and politics. Quantitative and qualitative approaches are examined.
Grading status: Letter grade.

SOCI 871. Sociology of Religion. 3 Credits.
An introductory, graduate-level survey of the sociology of religion as a field of study, reviewing literature on important theoretical approaches and key problems and issues in the field.
Grading status: Letter grade.

SOCI 872. The Sociology of Science: Science as a Social and Cultural Activity. 3 Credits.
This course examines the production of scientific knowledge.
The focus is on the processes by which scientific knowledge and technological artifacts are constructed through cultural practices and the organizational of scientific work.
Grading status: Letter grade.

SOCI 901. Field Research. 3 Credits.
Permission of the instructor.
Grading status: Letter grade.

SOCI 905. Survey Practicum. 1 Credit.
Applied workshop in sample survey design and implementation. The student works in a data collection center under the guidance of the instructor. Course focuses on real world problems in data collection and their practical, cost-effective solutions.
Grading status: Letter grade.

SOCI 950. Seminar in Selected Topics. 1-6 Credits.
Permission of the instructor. The course description for a particular semester is available in the departmental office.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

SOCI 960. Training Program Seminars. 1 Credit.
Continuing seminars in selected topics.
Grading status: Letter grade.

SOCI 961. Reading and Research. 1-6 Credits.
Permission of the instructor.
Grading status: Letter grade.

SOCI 962. Advanced Reading. 3 Credits.
Library research or field research on a selected topic under guidance of the instructor.
Grading status: Letter grade.

SOCI 970. Reading and Research in Methodology. 3 Credits.
Permission of the instructor. Special work on selected problems of research methodology.
Grading status: Letter grade.

SOCI 971. Reading and Research in Methodology. 3 Credits.
Permission of the instructor. Special work on selected problems of research methodology.
Grading status: Letter grade.

SOCI 979. Publishing in Sociology. 3 Credits.
Permission of the instructor. This seminar exposes students to a variety of issues related to journal publication in sociology, such as types of journals and collaboration, the experience of writing an article for submission to a journal, reviewing articles for journals, and responding to editorial decisions.
Grading status: Letter grade.

SOCI 980. Seminar on the Teaching of Sociology. 3 Credits.
Doctoral candidacy in sociology or permission of the instructor. Examines the teacher's role and the teaching process, planning a course and constructing syllabi, testing for teaching or grading, evaluating teacher performance and the needs of different student populations.
Grading status: Letter grade.

SOCI 993. Master's Research and Thesis. 3 Credits.
Individual research in a selected field under the direction of a member of the department.
Repeat rules: May be repeated for credit.

SOCI 994. Doctoral Research and Dissertation. 3 Credits.
Individual research in a selected field under the direction of a member of the department.
Repeat rules: May be repeated for credit.

DIVISION OF SPEECH AND HEARING SCIENCES (GRAD)

Contact Information

Division of Speech and Hearing Sciences
Visit Program Website (http://www.med.unc.edu/ahs/sphs)

The Division of Speech and Hearing Sciences in the School of Medicine's Department of Allied Health Sciences provides academic and professional education for speech-language pathologists and audiologists. Programs of study are available at the master's level in speech-language pathology. Programs of study at the doctoral level are available in clinical audiology (Au.D.) and in research (Ph.D.). The study of speech and hearing requires knowledge in both normal and abnormal speech, language, and hearing. The speech and hearing sciences curriculum provides a multifaceted learning environment, including classroom, laboratory, and clinical experiences. Three major tracks of study are possible within the curriculum: audiology, speech-language pathology, and speech and hearing sciences. There are three academic degree programs:

1. A master's degree (M.S.) for entry-level clinical practice of speech-language pathology
2. A professional doctorate in clinical audiology (Au.D.)
3. A Ph.D. in speech and hearing sciences for students with a background in speech-language pathology or audiology who desire a research degree

All of these programs are interdisciplinary in nature, involving clinical and research activities with other University departments and centers in addition to the Division of Speech and Hearing Sciences.

The entrance, academic, and residency requirements for the M.S. and Ph.D. degrees correspond to those of The Graduate School. Applicants to the Au.D. program follow the guidelines established by the School of Medicine for that degree program. Students enrolled in clinical degree programs (M.S. and Au.D.) are prepared to meet licensure and certification requirements necessary for the practice of speech-language pathology or audiology. Additional information describing the graduate programs in speech and hearing can be obtained on the division's Web site (http://www.med.unc.edu/ahs/sphs).

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Elizabeth R. Crais (048), Communication Disorders in Infants, Identification/Intervention with Young Children with Autism
Karen Erickson (045), Assessment of Reading and Writing, Literacy Instruction
John Grose (050), Psychoacoustics, Auditory Evoked Potentials
Melody Harrison (040), Early Speech, Language, and Auditory Development in Children with Hearing Loss
Lee McLean, Early Intervention and Language Development in Children (Emeritus)
Jackson Roush (058), Pediatric Audiology, Newborn Hearing Screening
Stephanie Sjoblad (082), Aural Rehabilitation, Hearing Aids and Assistive Devices
Linda R. Watson (067), Language Disorders in Young Children, Autism, Emerging Literacy

Associate Professors

Lisa Domby (025), Phonology, Bilingual Learning
Katarina L. Haley (072), Speech Perception and Production, Neurogenic Communication Disorders
Adam Jacks (085), Aphasia Neurogenic Communication Disorders, Speech Science
Cara McComish (001), Early Identification of Autism and Pediatric Feeding
Nancy McKenna (062), Genetics, Hearing Disorders
Martha Mundy (053), Educational and Pediatric Audiology
Debra R. Reinhartsen, Augmentative Communication, Low-Incidence Disabilities
Sharon Williams (074), Geriatrics, Communication Disorders of Older Adults, Multicultural Issues, Counseling
David Zajac (063), Speech Aerodynamics, Developmental Aspects of Speech Production, Cleft Palate Research

Assistant Professors

Philip Griffin, Adult Hearing Aids, Balance and Vestibular Assessment
Penelope Hatch (090), Literacy, Augmentative and Alternative Communication
Patricia Johnson(076), Hearing Aids and Assistive Devices
Brenda Mitchell, Speech and Language Disorders
Hannah Siburt (096), Hearing Assistive Devices, Audiologic Rehabilitation

Research Professor

Emily Buss (009), Psychoacoustic Research

Adjunct Associate Professors

Margaret Dillon (092), Adult Cochlear Implants
Douglas Fitzpatrick, Anatomy and Physiology of the Auditory System

Adjunct Assistant Professors

Jessica Dykstra Steinbrenner (093), Autism Research

Adjunct Instructors

Hannah Eskridge, Pediatric Aural Rehabilitation
Lynn Fox, Fluency Disorders
Brian Kanapkey, Dysphagia, Neurogenic Speech Disorders
English King, Adult Cochlear Implants
Stephanie McAdams, Medical Speech-Language Pathology
Lisa Park, Pediatric Cochlear Implants
Gina Vess, Voice and Voice Disorders

SPHS

Advanced Undergraduate and Graduate-level Courses

SPHS 400. Autism in Our Communities: An Interdisciplinary Perspective. 3 Credits.
Students have 30 hours of service-learning with individuals with autism at community partner sites. Class discussions introduce students to diverse topics related to autism spectrum disorder. This is an APPLES course.
Gen Ed: EE- Service Learning.
Grading status: Letter grade
Same as: EDUC 400.

SPHS 530. Introduction to Phonetics. 3 Credits.
A detailed study of the International Phonetic Alphabet with emphasis on the sound system of American English. Application of phonetics to problems of pronunciation and articulation. Includes broad and narrow phonetic transcription.
Grading status: Letter grade.

SPHS 540. Speech Science. 3 Credits.
Introduction to the science of speech, including production, acoustics, and perception.
Grading status: Letter grade.

SPHS 570. Anatomy and Physiology of the Speech, Language, and Hearing Mechanisms. 3 Credits.
Anatomy and physiology of the speech producing and aural mechanisms.
Grading status: Letter grade.

SPHS 582. Introductory Audiology I. 3 Credits.
Theory and practice of the measurement of hearing, causative factors in hearing loss, evaluation of audiometric results, and demonstration of clinical procedures.
Grading status: Letter grade.

SPHS 583. Introduction to Clinical Practice in Speech-Language Pathology and Audiology. 3 Credits.
Introduction to diagnosis and treatment of communication disorders, including articulation, fluency, voice, and language, and those resulting from autism and hearing loss.
Grading status: Letter grade.

Graduate-level Courses

SPHS 701. Introduction to Research in Speech and Hearing. 3 Credits.
Required preparation, statistics course. Experimental and descriptive research designs in speech and hearing sciences, including both group and single subject.
Grading status: Letter grade.

SPHS 705. CL PRACT OBS/AUDIO. 1-15 Credits.

SPHS 706. Clinical Practicum in Audiology. 1-15 Credits.
Supervised clinical experience. May be repeated for credit.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

SPHS 707. COMM ASSESS PRESCHLRS. 3 Credits.

SPHS 708. Cochlear Implants: Foundations & Clinical Applications. 4 Credits.
Examines fundamentals of cochlear implants, candidacy, evaluation, equipment, programming, and performance outcomes.
Requisites: Prerequisites, SPHS 715 and 811.
Grading status: Letter grade.

SPHS 710. Audiologic Assessment. 3 Credits.
Clinical Audiology assessment including pure-tone audiometry, immittance measures, and other measures commonly employed in the standard diagnostic battery.
Requisites: Prerequisite, SPHS 582 or equivalent.
Grading status: Letter grade.

SPHS 710L. Audiologic Assessment Lab. 1 Credit.
Laboratory exercises in threshold determination, clinical masking and speech recognition testing, all concepts introduced in SPHS 710, Audiologic Assessment.
Grading status: Letter grade.

SPHS 712. Characteristics of Amplification Systems. 3 Credits.
Amplification options for the hearing-impaired; specifically, hearing aid, electroacoustics, and earmold technologies. Additionally, hearing aid selection procedures are presented.
Grading status: Letter grade.

SPHS 712L. Characteristics of Amplification Lab. 1 Credit.
Laboratory activities related to earmolds, hearing aids, and ANSI electroacoustic verification.
Grading status: Letter grade.

SPHS 715. Anatomy and Physiology of Hearing. 3 Credits.
This course will cover anatomy and physiology of the peripheral hearing system (outer, middle, and inner ear) as well as relevant central pathways.
Grading status: Letter grade.

SPHS 717. Professional Considerations in Speech and Hearing. 3 Credits.
To provide the student with information about current issues facing professionals. Issues include changing delivery systems, leadership, treatment efficacy and quality, reimbursement, and ethics.
Grading status: Letter grade.

SPHS 722. Auditory Perception. 3 Credits.
This course provides an overview of psychoacoustics - the psychology of hearing. Content includes introductory acoustics, normal sound perception, and the perceptual consequences of impaired hearing.
Grading status: Letter grade.

SPHS 725. Hearing Disorders. 3 Credits.
Diseases and disorders of the auditory system and their management.
Requisites: Prerequisite, SPHS 582.
Grading status: Letter grade.

SPHS 726. Clinical Issues and Experiences in Audiology. 1 Credit.
Online course covering universal precautions, privacy regulations, clinical practice with diverse cultural groups, report writing, and other aspects of audiology practice.
Grading status: Letter grade.

SPHS 730. Instrumentation and Calibration. 1 Credit.
Principles of instrumentation relevant to clinical practice including study of electronics, filters, and analog and digital processing.
Grading status: Letter grade.

SPHS 733. Auditory Strategies for Spoken Language in Deaf Children. 1 Credit.
Instruction and application of a variety of topics demonstrating the use of auditory techniques, and strategies to promote the use of spoken language in children with hearing loss.
Grading status: Letter grade.

SPHS 740. Principles of Prevention, Assessment, and Intervention in Speech-Pathology. 3 Credits.
Principles and methods of prevention, assessment, and intervention for people with communication and swallowing disorders, including consideration of anatomical/physiological, psychological, developmental, and linguistic and cultural correlates of the disorders.
Grading status: Letter grade.

SPHS 741. Neuroanatomy. 3 Credits.
A survey of neurological anatomy in relation to clinical speech-language pathology. Topics considered include organization of the CNS, neuroanatomy, neurophysiology, and neurochemistry.
Requisites: Prerequisite, SPHS 570.
Grading status: Letter grade.

SPHS 742. Aphasia. 3 Credits.
Discussion of adult aphasia and its clinical management, including assessment, diagnosis, prognosis, counseling, and treatment. Combined lectures and laboratories.
Requisites: Prerequisite, SPHS 570.
Grading status: Letter grade.

SPHS 743. Pediatric Speech Disorders. 4 Credits.
Identification and differential diagnosis of delayed and disordered speech development; associated body structures and functions; intervention approaches focused on improving speech intelligibility, fluency, and participation in communication activities.
Requisites: Prerequisite, SPHS 530; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

SPHS 744. Motor Speech Disorders. 4 Credits.
Assessment and treatment of adults with disorders of motor speech control (i.e. dysarthria, anarthria, fluency, and apraxia of speech).
Requisites: Prerequisites, SPHS 540 and 570.
Grading status: Letter grade.

SPHS 748. Voice Disorders. 1 Credit.
Assessment and management of children and adults with fluency or voice disorders (including laryngectomy).
Grading status: Letter grade.

SPHS 749. Evaluation and Clinical Management of Persons with Oral-Facial Anomalies. 3 Credits.
In-depth analysis of the embryologic and physiologic bases of oral-facial anomalies and the team approach to assessment and habilitation. Particular emphasis placed upon the following specialties: genetics, plastic surgery, prosthodontics, orthodontics, otolaryngology, and speech-language pathology.
Requisites: Prerequisites, SPHS 540 and 570.
Grading status: Letter grade.

SPHS 751. Communication Disorders: Global Service Learning. 2 Credits.
This course combines seminars, readings, and service-learning fieldwork, providing students the opportunity to practice and refine language skills for working with culturally and linguistically diverse individuals with communication disorders.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

SPHS 752. Seminar in Medical Speech Language Pathology. 3 Credits.
Discussion of normal aging and language. Assessment and treatment of cognitive and linguistic problems in persons with dementing conditions, right hemisphere dysfunction, and traumatic brain injury.
Grading status: Letter grade.

SPHS 754. Dysphagia. 3 Credits.
Discussion of the development of the normal swallow, anatomy and physiology of the swallowing mechanism, and assessment and team management of swallowing disorders.
Grading status: Letter grade.

SPHS 760. Neurologic Communication Disorders in Adults. 3 Credits.
Overview of communication disorders commonly seen in adult populations. These include disorders of language, cognition, speech and motor control, voice, and fluency.
Grading status: Letter grade.

SPHS 761. Child Communication Disorders. 3 Credits.
Disorders of child speech and language development, as a prerequisite for advanced specialized coursework and supervised clinical practicum.
Grading status: Letter grade.

SPHS 762. Language Impairments in School Age Children. 3 Credits.
Assessment and intervention methods for receptive and expressive language (phonology, morphology, syntax, semantics, pragmatics, prelinguistic communication, and paralinguistic communication) in speaking, listening, reading, and writing.
Grading status: Letter grade.

SPHS 765. Augmentative and Alternative Communication. 3 Credits.
Introduction to Augmentative and Alternative Communication (AAC) systems for individuals with complex communication impairments; processes involved in selecting, representing, and organizing vocabulary; strategies to support development of communicative competence in AAC.
Grading status: Letter grade.

SPHS 771. Supervised Clincal Experience in Speech-Language Pathology I. 1 Credit.
Supervised clinical experience in Speech-Language Pathology scope of practice.
Grading status: Letter grade.

SPHS 772. Supervised Clinical Experience in Speech-Language Pathology II. 1 Credit.
Supervised clinical experience in Speech-Language Pathology scope of practice.
Grading status: Letter grade.

SPHS 773. Supervised Clinical Experience in Speech-Language Pathology III. 1 Credit.
Supervised clinical experience in Speech-Language Pathology scope of practice.
Grading status: Letter grade.

SPHS 774. Supervised Clinical Experience in Speech-Language Pathology IV. 1 Credit.
Supervised clinical experience in Speech-Language Pathology scope of practice.
Grading status: Letter grade.

SPHS 775. Supervised Clinical Experience in Speech-Language Pathology V. 2 Credits.
Supervised clinical experience in Speech-Language Pathology scope of practice.
Repeat rules: May be repeated for credit. 6 total credits. 6 total completions.
Grading status: Letter grade.

SPHS 776. Ethical Practice Policies and Guidelines. 1 Credit.
Academic program accreditation standards; standards of ethical conduct; practice policies and guidelines; prevention of communication disorders; role of the speech-language pathologist.
Grading status: Letter grade.

SPHS 777. Contemporary Professional Issues in Speech-Language Pathology II. 1 Credit.
Principles and rules of the current ASHA Code of Ethics; technical reports, diagnostic and treatment reports; treatment plans, and professional correspondence.
Grading status: Letter grade.

SPHS 778. Culturally Responsive Practices in Speech-Language Pathology. 2 Credits.
Cultural and linguistic diversity, its influence on human communication and the infusion of this knowledge into clinical practice, recognizing the needs, values, preferred mode of communication, and cultural/linguistic background of the client/patient, family, caregivers, and relevant others.
Grading status: Letter grade.

SPHS 779. Contemporary Professional Issues in Speech-Language Pathology IV. 2 Credits.
Cultural competence; conflict management; effective clinical and professional interaction with clients/patients and relevant others.
Repeat rules: May be repeated for credit. 6 total credits. 4 total completions.
Grading status: Letter grade.

SPHS 792. Pediatric Dysphagia. 2 Credits.
This is a 2 credit hour course that explores the specialty area of pediatric feeding and dysphagia intervention. This course covers normal development of feeding skills, explores underlying etiologies of feeding disorders, and current methods and philosophies of providing evaluation and intervention.
Requisites: Prerequisite, SPHS 754.
Grading status: Letter grade.

SPHS 802. Problems in Speech and Hearing Sciences. 1-3 Credits.
May be repeated for credit.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 2 total completions.
Grading status: Letter grade.

SPHS 803. Audiologic Rehabilitation for Children. 3 Credits.
Covers speech perception and the effects of hearing loss on perception and production of speech as background for understanding assessment and treatment, with an auditory-verbal emphasis. Pediatric assessment and amplification are reviewed.
Grading status: Letter grade.

SPHS 804. Audiologic Rehabilitation for Adults. 3 Credits.
Theoretical bases and history of audiologic rehabilitation of adults. Also, practical approaches to assessment and therapeutic intervention are presented. The roles of assistive technology and family-based counseling are included.
Grading status: Letter grade.

SPHS 805. Auditory Verbal Therapy. 2 Credits.

SPHS 806. Seminar in Early Intervention. 3 Credits.
Stages of communication development of children from birth to five years old; clinical issues related to the assessment tools and intervention and planning for children with disabilities and their families.
Grading status: Letter grade.

SPHS 808. Seminar in Audiologic Rehabilitation. 2 Credits.
Audiologic rehabilitation including counseling, visual speech perception, auditory training, special needs of older adults and psychosocial aspects of hearing loss will be addressed. Review of technology to enhance communication included.
Requisites: Prerequisites, SPHS 712 and 813.
Grading status: Letter grade.

SPHS 809. Introduction to Cochlear Implants. 1 Credit.
Introductory information regarding cochlear implant candidacy, an overview of implant components, the evaluation process, surgery, device programming, and initiation of post implantation therapy. Class meets three hours for five weeks.
Grading status: Letter grade.

SPHS 811. Pediatric Audiology. 3 Credits.
Clinical procedures used in the identification and management of hearing loss in young children.
Grading status: Letter grade.

SPHS 812. Pediatric Amplification and Assistive Listening Devices. 2 Credits.
This course covers prescriptive formulas, verification and fitting of hearing aids and FM systems, and suggested monitoring of progress when working with young children with hearing loss and their families.
Requisites: Prerequisites, SPHS 712 and 811.
Grading status: Letter grade.

SPHS 813. Fitting and Dispensing of Amplification Systems. 3 Credits.
Theoretical and practical approaches to fitting amplification systems and the procedures for dispensing amplification systems to the hearing-impaired.
Requisites: Prerequisite, SPHS 712.
Grading status: Letter grade.

SPHS 813L. Fitting and Dispensing of Amplification Lab. 1 Credit.
Laboratory experiences related to the selection, programming, and fitting of amplification devices to hearing impaired individuals.
Requisites: Prerequisite, SPHS 712.
Grading status: Letter grade.

SPHS 814. Auditory Evoked Potentials I. 3 Credits.
This course explores the field of auditory evoked responses. The primary focus is on responses from the auditory periphery including otoacoustic emissions (OAEs), electrocochleography (ECochG), and the auditory brainstem response (ABR).
Requisites: Prerequisites, SPHS 710, 715, and 722.
Grading status: Letter grade.

SPHS 814L. The Auditory Evoked Potentials I Lab. 1 Credit.
Elecrophysiologic laboratory exercises to accompany Auditory Evoked Potentials I course.
Requisites: Prerequisites, SPHS 710, 715, and 722.
Grading status: Letter grade.

SPHS 815. Auditory Evoked Potentials II. 2 Credits.
Advanced principles of pediatric audiology and intervention strategies for hearing-impaired children. Procedures for counseling and case management.
Requisites: Prerequisite, SPHS 582.
Grading status: Letter grade.

SPHS 816. Occupational and Community Audiology. 2 Credits.
Military and industrial audiology and hearing conservation, including physiological and psychological factors.
Requisites: Prerequisite, SPHS 582.
Grading status: Letter grade.

SPHS 818. Balance Assessment and Rehabilitation. 3 Credits.
Principles of vestibular function and dysfunction, clinical assessment, and management.
Grading status: Letter grade.

SPHS 818L. Balance Assessment Lab. 1 Credit.
Laboratory exercises to accompany Balance Assessment course. To include case history, bedside examination, and objective measurements.
Requisites: Prerequisite, SPHS 710.
Grading status: Letter grade.

SPHS 819. Educational Audiology. 2 Credits.
Examines the provision of services to school-age children, with special focus on eligibility determination and assessment of central auditory perception.
Requisites: Prerequisites, SPHS 710 and 871L.
Grading status: Letter grade.

SPHS 823. Business Management and Professional Issues. 3 Credits.
Examine healthcare and business models that impact audiology practice. Personnel management, marketing, quality assurance, and service reimbursement for audiology practices will be covered.
Grading status: Letter grade.

SPHS 824. Audiology Grand Rounds. 1 Credit.
Examines clinical cases from the perspective of presenting symptoms, test results, and clinical outcomes.
Grading status: Letter grade.

SPHS 825. Embryology and Genetics of Hearing and Deafness. 2 Credits.
Genetics related to developing hearing and balance structures as well as syndromic and nonsyndromic hearing loss and deafness.
Grading status: Letter grade.

SPHS 827. Pharmacology & Tinnitus in Audiology Practice. 2 Credits.
Advanced audiology course that provides fundamental knowledge about pharmacological mechanisms and their impact on hearing and balance, as well as evaluation and management of patients with persistent tinnitus.
Requisites: Prerequisite, SPHS 715 and SPHS 725.
Grading status: Letter grade.

SPHS 830. Independent Study. 1-5 Credits.
This course gives enrolled graduate students in the curriculum an opportunity to pursue research supervised by one or more faculty members, culminating in a written document or special project.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

SPHS 831. Advanced Signal Processing. 1 Credit.
This course will provide information regarding advanced signal processing utilized in digital amplification and cochlear implants.
Grading status: Letter grade.

SPHS 832. Speech Acoustics. 2 Credits.
This course provides information on the fundamentals of speech production, including the acoustic characteristics of normal and disordered speech.
Requisites: Prerequisite, SPHS 833.
Grading status: Letter grade.

SPHS 833. Special Topics. 3 Credits.
This is the foundation course in a series related to providing services to children with hearing loss. Six units focus on working with families, speech acoustics, audiological interpretation, instrumentation, foundations of speech and language, and early literacy.
Grading status: Letter grade.

SPHS 834. Counseling and Communication Disorders. 3 Credits.
This course provides a broad overview of contemporary counseling issues in communication disorders. The impact of subject age, life course, and cultural background on interviewing and counseling is included.
Grading status: Letter grade.

SPHS 836. Audiology Interpretation and Hearing Technologies. 4 Credits.
This course focuses on behavioral and physiologic assessment of hearing in children and how these measures are used in aural habilitation. Fundamentals of hearing instrument technology including the selection and fitting of hearing aids and cochlear implants are addressed.
Grading status: Letter grade.

SPHS 840. Aging and Communication Disorders. 3 Credits.
This course focuses on medical, psychological, and social theories and aspects of aging as they relate to communication processes and disorders.
Grading status: Letter grade.

SPHS 841. Seminar in Speech-Language Pathology. 0.5-15 Credits.
Special topics and significant literature in the field of speech pathology.
Grading status: Letter grade.

SPHS 849. Fluency Disorders. 2 Credits.
Course participants will develop an understanding of evaluation and treatment of acquired and developmental fluency disorders in children and adults through lecture and hands-on practice.
Grading status: Letter grade.

SPHS 850. Language Disorders Encountered in Audiology. 3 Credits.
Students will learn about four areas of language disorders affecting children and adults (receptive and expressive language disorders, communication modalities, social aspects of communication, and cognitive aspects of communication) through readings, posted videos, and online quizzes. This is an asynchronous online course.
Grading status: Letter grade.

SPHS 851. Speech Disorders Encountered in Audiology. 3 Credits.
Students will learn about speech disorders (fluency, voice, articulation, and craniofacial anomalies) through readings, posted videos, and online quizzes. This is an online asynchronous course.
Grading status: Letter grade.

SPHS 852. Speech and Language Disorders Encountered in Audiology. 3 Credits.
Students will select two topics from speech disorders (fluency, voice, articulation, and craniofacial anomalies) and two topics from language disorders(receptive and expressive language disorders, communication modalities, social aspects of communication, and cognitive aspects of communication). This is an online asynchronous course with readings, videos, and quizzes.
Grading status: Letter grade.

SPHS 860. Seminar on Early Communication Disorders. 3 Credits.

SPHS 861. Seminar in Language and Language Disorders. 1-3 Credits.
Special topics and significant literature in the field of language and language disorders. May be repeated for credit.
Grading status: Letter grade.

SPHS 863. Listening and Spoken Language Development and Intervention. 3 Credits.
The course focuses on typical development, impact of hearing loss on listening and spoken language acquisition, assessment, strategies/techniques, and intervention for children birht-5 years who are deaf/hard of hearing.
Requisites: Prerequisites, SPHS 832 and 836.
Grading status: Letter grade.

SPHS 864. Speech and Language Impairments of Children. 3 Credits.
Seminar course exploring categorical classifications of young children and the impact of these categories on assessment and intervention. Common topics include autism, visual impairments, fragile X syndrome, and Down syndrome.
Grading status: Letter grade.

SPHS 865. Doctoral Seminar in Grant Writing. 3 Credits.

SPHS 870. Directed Research Experience. 2 Credits.
This course gives enrolled audiology and Speech-language pathology graduate students an opportunity to pursue research supervised by one or more faculty members culminating in a document, project, or presentation (1-3).
Grading status: Letter grade.

SPHS 871. Teaching and Supervision. 1 Credit.
Course regarding teaching of skills and supervision of individuals conducting screening programs. Introduction to teaching and development of assessment tools provides a background for the teaching lab associated with this course.
Grading status: Letter grade.

SPHS 871L. Teaching and Supervision Lab. 1 Credit.
Experience developing and delivering training module, instructional module, and supervising new trainees.
Grading status: Letter grade.

SPHS 880. Autism Seminar. 3 Credits.
The purpose of this course is to develop a familiarity and understanding of topics related to Autism Spectrum Disorders(ASD). Issues related to characteristics, etiologies, theories, assessment, and intervention will be discussed.
Grading status: Letter grade.

SPHS 882. Seminar in Speech Science. 1-3 Credits.
Advanced special topics and current research in speech science. May be repeated for credit.
Grading status: Letter grade.

SPHS 888. Autism and Other Developmental Disabilities in Children Who Are Deaf or Hard of Hearing I. 1 Credit.
Students will acquire knowledge related to screening, diagnosis, and intervention for children who have autism and/or other developmental disabilities in addition to hearing loss.
Grading status: Letter grade.

SPHS 889. Autism and Other Developmental Disabilities in Children Who Are Deaf or Hard of Hearing II. 1 Credit.
Students and faculty will examine challenges and solutions related to screening, diagnosis, and intervention for children who have autism and/or other developmental disabilities in addition to hearing loss.
Repeat rules: May be repeated for credit. 2 total credits. 1 total completions.
Grading status: Letter grade.

SPHS 896. North Carolina Service Learning Trip. 1 Credit.
Interdisciplinary learning experience focused on examining social determinants of health while performing service activities in collaboration with community partners.
Repeat rules: May be repeated for credit. 3 total credits. 3 total completions.
Grading status: Letter grade.

SPHS 897. Autism Seminar. 3 Credits.
Participants develop knowledge of the major neuropsychological theories of autism and methodological issues in autism research through reading and discussion of literature; participate in developing and presenting autism research projects individually or in groups.
Grading status: Letter grade.

SPHS 898. Literacy. 3 Credits.
This course provides an overview of literacy development for children birth to eight years old. It will also address the impact of hearing loss on the development of literacy.
Grading status: Letter grade.

SPHS 900. Research Design. 3 Credits.
Doctoral seminar that introduces the student to principles of quantitative research methodology.
Grading status: Letter grade.

SPHS 901. Seminar in Single Subject and Survey Research. 3 Credits.
Doctoral student seminar that introduces the student to principles of single subject and survey research methodology.
Grading status: Letter grade.

SPHS 902. Research in the Context of the Evidence-Based Practice Movement in Early Intervention. 3 Credits.
Overview of the evidence-based practice (EBP) movement in early intervention(EI),definitions of EBP, systems for appraising evidence quality, examination of evidence base for current practices in EI.
Grading status: Letter grade.

SPHS 950. Research, Resources, and Technologies. 1 Credit.
This course explores the use of computers in research and clinical practice for speech-language pathologists and audiologists. .
Grading status: Letter grade.

SPHS 966I. CONS AND COLLABORA. 3 Credits.

SPHS 993. Master's Research and Thesis. 3 Credits.

SPHS 994. Doctoral Research and Dissertation. 3 Credits.

DEPARTMENT OF STATISTICS AND OPERATIONS RESEARCH (GRAD)

Contact Information

Department of Statistics and Operations Research
Visit Program Website (http://stat-or.unc.edu)

The Department offers the master of science (M.S.) and doctor of philosophy (Ph.D.) in statistics and operations research (STOR). The M.S. degree is a single program (MS-STOR). The Ph.D. degree can be earned in one of three programs: statistics (STAT), operations research (OR), and interdisciplinary statistics and operations research (INSTORE).

The MS-STOR program is intended for students who wish to pursue careers in data science and analytics or as a preparation for continuing on to further graduate studies in related areas. This program focuses on training students in advanced quantitative thinking due to the increasing demand for skills in data-driven decision making in the modern world. It is possible for motivated students to complete the requirements in three semesters, though the typical duration is four. For students graduating with an undergraduate STAN degree, there is also an option of 5-year MS-STOR program.

The Ph.D. degree in STOR is designed for students planning a career in teaching or research. This degree requires at least three (but usually five) years of full-time graduate study, predicated upon substantial undergraduate mathematical preparation. Research is a central component in the work of doctoral candidates. Research training consists of required core coursework as well as electives that are designed to bring students up to date in their research field and intensive one-on-one work with a faculty member on a specific dissertation topic. Doctoral students who want to pursue academic careers are provided with ample opportunities to teach introductory undergraduate courses, and they are given extensive training to develop their instructional skills. Doctoral students may also participate in paid internships with local industrial employers to gain experience in a business environment. Their professional skills are further enhanced by work on real-world projects with clients in the department's consulting courses. Several courses provide opportunities for students to give technical presentations and refine their communication skills.

Further information on the graduate degree programs can be obtained from the department's Web site (https://stat-or.unc.edu/programs).

Admissions and Financial Aid

Admission to the department is highly competitive, and preference is given to applicants who are solidly prepared. Although the department welcomes promising students from all disciplines, entering students must have a substantial mathematical background and applicants must satisfy the entrance requirements of The Graduate School. A student admitted with a deficiency in any area must make up for it at the beginning of her or his graduate work. If the deficiency is not severe, this can be accomplished without interrupting the normal program.

Application form (http://gradschool.unc.edu/admissions)

Students can indicate on this application form (http://gradschool.unc.edu/admissions) whether they intend to pursue the M.S .degree program or a Ph.D. in one of these three programs: OR, STAT, or INSTORE.

Funding basics (https://gradschool.unc.edu/funding/basics/fundingbasics.html) including links for Financial Aid are provided by The Graduate School.

Most of our Ph.D. students receive some form of financial support, such as Graduate School fellowships, departmental assistantships, research assistantships, or internships. Departmental assistantships involve grading or teaching an undergraduate course. Some of our students are supported as research assistants by faculty. Our supported students receive a tuition waiver, and health insurance for the duration of their studies.

Ph.D. Program in Operations Research

Operations research is concerned with the process of decision making for the purpose of optimal resource allocation. The spectrum of related activities includes basic research in optimization theory, development of deterministic and stochastic mathematical models as aids for decision making, and application of these models to real-world problems. The principal steps in modeling consist of analyzing relationships that determine the probable future consequences of decision choices and then devising appropriate measures of effectiveness in order to evaluate the relative merits of alternative actions. During the past 50 years, operations research has developed as a mathematical science whose methods of analysis are regularly employed in many diverse industries and governmental agencies.

Ph.D. Program in Statistics

The Ph.D. program in statistics provides students with a broad-based course of study in applied statistics, theoretical statistics, and probability, as well as numerous advanced topic courses. The breadth and depth of the program has served graduates well in their subsequent careers in academia, industry, and government. Doctoral students pursue a wide range of dissertation research, ranging from applied statistics to theoretical probability. Many students are involved in interdisciplinary research that puts them in regular contact with faculty and students in other departments at UNC, and in some cases, other institutions. Past interactions with other units at UNC have included Environmental Sciences, Biology, the Lineberger Comprehensive Cancer Center, Computer Science, Biostatistics, Economics, and the Carolina Center for Genome Sciences.

Ph.D. Program in INSTORE

The Ph.D. program entitled interdisciplinary statistics and operations research (INSTORE) was established in the fall semester of 2007. The INSTORE program is suitable for students pursuing an interdisciplinary research agenda who want to combine elements from the traditional statistics and operations research programs. The INSTORE program allows flexibility for adaptively combining statistics and operations research. However, there are specific tracks that contain suggested sequences of courses allowing students to focus on certain areas of study.

Degree Requirements

M.S. STOR Program

The statistics M.S. degree requires 30 credit hours of coursework and the completion of a master's project. Students can choose from a variety of courses, including a limited number from outside the department.

Upon approval of The Graduate School, at most six credit hours may be transferred from another accredited institution or from within UNC–Chapel Hill for courses taken before admission to the M.S. program.

Ph.D. Program

The Ph.D. degree requires at least 45 semester hours of graduate coursework and the successful completion of a doctoral dissertation. Detailed information about specific courses, elective courses and allowable courses outside of the STOR department for each program are provided on the graduate admissions section of the program's Web site (http://stat-or.unc.edu/programs/statistics/phd).

Statistics Courses for Students From Other Disciplines

A number of STOR courses in probability and statistics are of potential interest to students in other disciplines. At the advanced undergraduate/beginning graduate level, STOR 455 and STOR 556, provide an introduction to applied statistics, including regression, analysis of variance, and time series. STOR 435 and STOR 555 provide introductions to probability theory and mathematical statistics, respectively, at a postcalculus level.

The three graduate course sequences–(STOR 664, STOR 665), (STOR 654, STOR 655), and (STOR 634, STOR 635)–provide comprehensive introductions to modern applied statistics, theoretical statistics, and probability theory, respectively, at a more mathematical level. In each case it is possible to take only the first course in the sequence. Concerning mathematical prerequisites, STOR 664 and STOR 665 require a background in linear algebra and matrix theory, while the remaining courses require a solid background in real analysis.

Following the faculty member's name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Professors

Nilay Argon (1), Stochastic Models, Manufacturing and Healthcare Applications, Discrete Event Simulation
Amarjit Budhiraja (2), Probability, Stochastic Analysis, Large Deviations
Edward Carlstein (3), Nonparametric Statistics, Resampling
Jan Hannig (14), Statistics, Fiducial Inference, Stochastic Processes
Vidyadhar G. Kulkarni (6), Stochastic Models of Queues, Healthcare Systems, Supply Chains, Telecommunication Systems, Warranties
Yufeng Liu (8) Carolina Center for Genome Sciences, Statistical Machine Learning, Data Mining, Bioinformatics, Experimental Designs
James Stephen Marron (10) (Amos Hawley Distinguished Professor), Object-Oriented Data Analysis, Visualization, Smoothing
Andrew Nobel (11), Machine Learning, Data Mining, Computational Genomics
Vladas Pipiras (13), Time Series and Spatial Modeling, Extreme Value Theory, Streaming and Sampling Algorithms
Richard L. Smith (7) (Mark L. Reed Distinguished Professor), Extreme Value Theory, Environmental Statistics, Spatial Statistics
Serhan Ziya (15), Stochastic Modeling, Healthcare Operations, Service Operations, Queueing Design and Control, Revenue Management

Associate Professors

Shankar Bhamidi (5), Probability, Random Networks, MCMC, Probabilistic Combinatorial Optimization
Chuanshu Ji (4), Financial Econometrics, Computational Materials Science, Monte Carlo Methods
Shu Lu (9), Optimization, Equilibrium Problems
Marianna Olvera-Cravioto (20), Applied Probability, Random Graphs, Heavy-Tailed Large Deviations, Weighted Branching Processes, Stochastic Simulation
Gabor Pataki (12), Convex Programming, Integer Programming
Kai Zhang (16), Mathematical Statistics, High Dimensional Inference, Inference After Variable Selection, Large Deviation, Quantum Computing

Assistant Professors

Sayan Banerjee (18), Stochastic Analysis, Probablistic Couplings, Interacting Particle Systems
Nicolas Fraiman (19), Random Structures, Combinatorial Statistics, Randomized Algorithms
Quoc Tran-Dinh (17), Numerical Optimization, Theory and Algorithms for Convex Optimization and Nonconvex Continuous Optimization

Teaching Assistant Professors

Robin Cunningham (21), Actuarial Models
Charles Dunn(22), Actuarial Models
Mario Giacomazzo (23), Statistics
Jeffrey McLean (24), Statistics

Joint Professors

Jason Fine (Biostatistics) Nonparametrics
Joseph Ibrahim (Alumni Distinguished Professor of Biostatistics) Bayesian Methods, Missing Data, Cancer Research
Michael Kosorok (Biostatistics), Biostatistics, Empirical Processes, Semiparametric Inference, Machine Learning, Personalized Medicine, Clinical Trials, Dynamic Treatment Regimes
Jayashankar Swaminathan (Benjamin Cone Research Professor, Kenan–Flagler Business School) Supply Chain, Stochastic Models

Professors Emeriti

George S. Fishman
Douglas G. Kelly
Malcolm Ross Leadbetter
J. Scott Provan
David S. Rubin
Gordon D. Simons
Walter L. Smith
Shaler Stidham Jr.
Jon W. Tolle

STOR

Advanced Undergraduate and Graduate-level Courses

STOR 415. Introduction to Optimization. 3 Credits.
Linear, integer, nonlinear, and dynamic programming, classical optimization problems, network theory.
Requisites: Prerequisite, MATH 547.
Grading status: Letter grade.

STOR 435. Introduction to Probability. 3 Credits.
Introduction to mathematical theory of probability covering random variables; moments; binomial, Poisson, normal and related distributions; generating functions; sums and sequences of random variables; and statistical applications.
Requisites: Prerequisite, MATH 233.
Gen Ed: QI.
Grading status: Letter grade
Same as: MATH 535.

STOR 445. Stochastic Modeling. 3 Credits.
Introduction to Markov chains, Poisson process, continuous-time Markov chains, renewal theory. Applications to queueing systems, inventory, and reliability, with emphasis on systems modeling, design, and control.
Requisites: Prerequisite, BIOS 660 or STOR 435.
Grading status: Letter grade.

STOR 455. Methods of Data Analysis. 3 Credits.
Review of basic inference; two-sample comparisons; correlation; introduction to matrices; simple and multiple regression (including significance tests, diagnostics, variable selection); analysis of variance; use of statistical software.
Requisites: Prerequisite, STOR 155.
Grading status: Letter grade.

STOR 465. Simulation for Analytics. 3 Credits.
Introduces concepts of random number generation, random variate generation, and discrete event simulation of stochastic systems. Students perform simulation experiments using standard simulation software.
Requisites: Prerequisites, STOR 155 and 435.
Grading status: Letter grade.

STOR 471. Long-Term Actuarial Models. 3 Credits.
Probability models for long-term insurance and pension systems that involve future contingent payments and failure-time random variables. Introduction to survival distributions and measures of interest and annuities-certain.
Requisites: Prerequisite, STOR 435.
Gen Ed: QI.
Grading status: Letter grade.

STOR 472. Short Term Actuarial Models. 3 Credits.
Short term probability models for potential losses and their applications to both traditional insurance systems and conventional business decisions. Introduction to stochastic process models of solvency requirements.
Requisites: Prerequisite, STOR 435.
Grading status: Letter grade.

STOR 493. Internship in Statistics and Operations Research. 3 Credits.
Requires permission of the department. Statistics and analytics majors only. An opportunity to obtain credit for an internship related to statistics, operations research, or actuarial science. Pass/Fail only. Does not count toward the statistics and analytics major or minor.
Gen Ed: EE- Academic Internship.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Pass/Fail.

STOR 496. Undergraduate Reading and Research in Statistics and Operations Research. 1-3 Credits.
Permission of the director of undergraduate studies. This course is intended mainly for students working on honors projects. May be repeated for credit.
Gen Ed: EE- Mentored Research.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 6 total completions.
Grading status: Letter grade.

STOR 555. Mathematical Statistics. 3 Credits.
Functions of random samples and their probability distributions, introductory theory of point and interval estimation and hypothesis testing, elementary decision theory.
Requisites: Prerequisite, STOR 435.
Grading status: Letter grade.

STOR 556. Advanced Methods of Data Analysis. 3 Credits.
Topics selected from: design of experiments, sample surveys, nonparametrics, time-series, multivariate analysis, contingency tables, logistic regression, and simulation. Use of statistical software packages.
Requisites: Prerequisites, STOR 435 and 455.
Grading status: Letter grade.

STOR 565. Machine Learning. 3 Credits.
Introduction to theory and methods of machine learning including classification; Bayes risk/rule, linear discriminant analysis, logistic regression, nearest neighbors, and support vector machines; clustering algorithms; overfitting, estimation error, cross validation.
Requisites: Prerequisites, STOR 215 or MATH 381, and STOR 435.
Grading status: Letter grade.

STOR 612. Models in Operations Research. 3 Credits.
Required preparation, calculus of several variables, linear or matrix algebra. Formulation, solution techniques, and sensitivity analysis for optimization problems which can be modeled as linear, integer, network flow, and dynamic programs. Use of software packages to solve linear, integer, and network problems.
Grading status: Letter grade.

STOR 614. Linear Programming. 3 Credits.
Required preparation, calculus of several variables, linear or matrix algebra. The theory of linear programming, computational methods for solving linear programs, and an introduction to nonlinear and integer programming. Basic optimality conditions, convexity, duality, sensitivity analysis, cutting planes, and Karush-Kuhn-Tucker conditions.
Grading status: Letter grade.

STOR 634. Probability I. 3 Credits.
Required preparation, advanced calculus. Lebesgue and abstract measure and integration, convergence theorems, differentiation. Radon-Nikodym theorem, product measures. Fubini theorems. Lp spaces.
Grading status: Letter grade.

STOR 635. Probability II. 3 Credits.
Foundations of probability. Basic classical theorems. Modes of probabilistic convergence. Central limit problem. Generating functions, characteristic functions. Conditional probability and expectation.
Requisites: Prerequisite, STOR 634; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: MATH 635.

STOR 641. Stochastic Models in Operations Research I. 3 Credits.
Review of probability, conditional probability, expectations, transforms, generating functions, special distributions, and functions of random variables. Introduction to stochastic processes. Discrete-time Markov chains. Transient and limiting behavior. First passage times.
Requisites: Prerequisite, STOR 435.
Grading status: Letter grade.

STOR 642. Stochastic Models in Operations Research II. 3 Credits.
Exponential distribution and Poisson process. Birth-death processes, continuous-time Markov chains. Transient and limiting behavior. Applications to elementary queueing theory. Renewal processes and regenerative processes.
Requisites: Prerequisite, STOR 641.
Grading status: Letter grade.

STOR 654. Statistical Theory I. 3 Credits.
Required preparation, two semesters of advanced calculus. Probability spaces. Random variables, distributions, expectation. Conditioning. Generating functions. Limit theorems: LLN, CLT, Slutsky, delta-method, big-O in probability. Inequalities. Distribution theory: normal, chi-squared, beta, gamma, Cauchy, other multivariate distributions. Distribution theory for linear models.
Grading status: Letter grade.

STOR 655. Statistical Theory II. 3 Credits.
Point estimation. Hypothesis testing and confidence sets. Contingency tables, nonparametric goodness-of-fit. Linear model optimality theory: BLUE, MVU, MLE. Multivariate tests. Introduction to decision theory and Bayesian inference.
Requisites: Prerequisite, STOR 654.
Grading status: Letter grade.

STOR 664. Applied Statistics I. 3 Credits.
Permission of the instructor. Basics of linear models: matrix formulation, least squares, tests. Computing environments: SAS, MATLAB, S +. Visualization: histograms, scatterplots, smoothing, QQ plots. Transformations: log, Box-Cox, etc. Diagnostics and model selection.
Grading status: Letter grade.

STOR 665. Applied Statistics II. 3 Credits.
ANOVA (including nested and crossed models, multiple comparisons). GLM basics: exponential families, link functions, likelihood, quasi-likelihood, conditional likelihood. Numerical analysis: numerical linear algebra, optimization; GLM diagnostics. Simulation: transformation, rejection, Gibbs sampler.
Requisites: Prerequisite, STOR 664; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

STOR 672. Simulation Modeling and Analysis. 3 Credits.
Introduces students to modeling, programming, and statistical analysis applicable to computer simulations. Emphasizes statistical analysis of simulation output for decision-making. Focuses on discrete-event simulations and discusses other simulation methodologies such as Monte Carlo and agent-based simulations. Students model, program, and run simulations using specialized software. Familiarity with computer programming recommended.
Requisites: Prerequisites, STOR 555 and 641.
Grading status: Letter grade
Same as: COMP 672.

STOR 691H. Honors in Statistics and Analytics. 3 Credits.
Permission of the department. Majors only. Individual reading, study, or project supervised by a faculty member.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

STOR 692H. Honors in Statistics and Analytics. 3 Credits.
Permission of the department. Majors only. Individual reading, study, or project supervised by a faculty member.
Gen Ed: EE- Mentored Research.
Grading status: Letter grade.

Graduate-level Courses

STOR 701. Statistics and Operations Research Colloquium. 1 Credit.
This seminar course is intended to give Ph.D. students exposure to cutting edge research topics in statistics and operations research and assist them in their choice of a dissertation topic. The course also provides a forum for students to meet and learn from major researchers in the field.
Repeat rules: May be repeated for credit. 10 total credits. 10 total completions.
Grading status: Letter grade.

STOR 705. Operations Research Practice. 3 Credits.
Gives students an opportunity to work on an actual operations research project from start to finish under the supervision of a faculty member. Intended exclusively for operations research students.
Requisites: Prerequisites, STOR 614, 641, and 672; Permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

STOR 712. Mathematical Programming I. 3 Credits.
Advanced topics from mathematical programming such as geometry of optimization, parametric analysis, finiteness and convergence proofs, and techniques for large-scale and specially structured problems.
Requisites: Prerequisites, MATH 661 and STOR 614; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

STOR 713. Mathematical Programming II. 3 Credits.
Advanced theory for nonlinear optimization. Algorithms for unconstrained and constrained problems.
Requisites: Prerequisite, STOR 712; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

STOR 722. Integer Programming. 3 Credits.
Techniques for formulating and solving discrete valued and combinatorial optimization problems. Topics include enumerative and cutting plane methods, Lagrangian relaxation, Benders' decomposition, knapsack problems, and matching and covering problems.
Requisites: Prerequisite, STOR 614; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

STOR 724. Networks. 3 Credits.
Network flow problems and solution algorithms; maximum flow, shortest route, assignment, and minimum cost flow problems; Hungarian and out-of-kilter algorithms; combinatorial and scheduling applications.
Requisites: Prerequisite, STOR 614; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade.

STOR 734. Stochastic Processes. 3 Credits.
Discrete and continuous parameter Markov chains, Brownian motion, stationary processes.
Requisites: Prerequisite, STOR 435.
Grading status: Letter grade.

STOR 743. Stochastic Models in Operations Research III. 3 Credits.
Intermediate queueing theory, queueing networks. Reliability. Diffusion processes and applications. Markov decision processes (stochastic dynamic programming): finite horizon, infinite horizon, discounted and average-cost criteria.
Requisites: Prerequisite, STOR 642.
Grading status: Letter grade.

STOR 744. Queueing Networks. 3 Credits.
Jackson networks; open and closed. Reversibility and quasi-reversibility. Product form networks. Nonproduct form networks. Approximations. Applications to computer performance evaluations and telecommunication networks.
Requisites: Prerequisite, STOR 642; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

STOR 754. Time Series and Multivariate Analysis. 3 Credits.
Introduction to time series: exploratory analysis, time-domain analysis and ARMA models, Fourier analysis, state space analysis. Introduction to multivariate analysis: principal components, canonical correlation, classification and clustering, dimension reduction.
Requisites: Prerequisites, STOR 435 and 555.
Grading status: Letter grade.

STOR 755. Estimation, Hypothesis Testing, and Statistical Decision. 3 Credits.
Bayes procedures for estimation and testing. Minimax procedures. Unbiased estimators. Unbiased tests and similar tests. Invariant procedures. Sufficient statistics. Confidence sets. Large sample theory. Statistical decision theory.
Requisites: Prerequisites, STOR 635 and 655.
Grading status: Letter grade.

STOR 756. Design and Robustness. 3 Credits.
Introduction to experimental design, including classical designs, industrial designs, optimality, and sequential designs. Introduction to robust statistical methods; bootstrap, cross-validation, and resampling.
Requisites: Prerequisite, STOR 555.
Grading status: Letter grade.

STOR 757. Bayesian Statistics and Generalized Linear Models. 3 Credits.
Bayes factors, empirical Bayes theory, applications of generalized linear models.
Requisites: Prerequisite, STOR 555.
Grading status: Letter grade.

STOR 763. Statistical Quality Improvement. 3 Credits.
Methods for quality improvement through process control, graphical methods, designed experimentation. Shewhart charts, cusum schemes, methods for autocorrelated multivariate process data, process capability analysis, factorial and response surface designs, attribute sampling.
Requisites: Prerequisites, STOR 655 and 664.
Grading status: Letter grade.

STOR 765. Statistical Consulting. 1.5 Credit.
Application of statistics to real problems presented by researchers from the University and local companies and institutes. (Taught over two semesters for a total of 3 credits.)
Repeat rules: May be repeated for credit. 3 total credits. 2 total completions.
Grading status: Letter grade.

STOR 767. Advanced Statistical Machine Learning. 3 Credits.
This is a graduate course on statistical machine learning.
Requisites: Prerequisites, STOR 654,655, 664, 665 and permission of the instructor.
Grading status: Letter grade.

STOR 772. Introduction to Inventory Theory. 3 Credits.
Permission of the instructor. Introduction to the techniques of constructing and analyzing mathematical models of inventory systems.
Grading status: Letter grade.

STOR 790. Operations Research and Systems Analysis Student Seminar. 1 Credit.
Survey of literature in operations research and systems analysis.
Grading status: Letter grade.

STOR 822. Topics in Discrete Optimization. 3 Credits.
Topics may include polynomial algorithms, computational complexity, matching and matroid problems, and the traveling salesman problem.
Requisites: Prerequisite, STOR 712; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: COMP 822.

STOR 824. Computational Methods in Mathematical Programming. 3 Credits.
Advanced topics such as interior point methods, parallel algorithms, branch and cut methods, and subgradient optimization.
Requisites: Prerequisite, STOR 712; Permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade.

STOR 831. Advanced Probability. 3 Credits.
Advanced theoretic course, covering topics selected from weak convergence theory, central limit theorems, laws of large numbers, stable laws, infinitely divisible laws, random walks, martingales.
Requisites: Prerequisites, STOR 634 and 635.
Repeat rules: May be repeated for credit. 9 total credits. 3 total completions.
Grading status: Letter grade.

STOR 832. Stochastic Processes. 3 Credits.
Advanced theoretic course including topics selected from foundations of stochastic processes, renewal processes, Markov processes, martingales, point processes.
Requisites: Prerequisites, STOR 634 and 635.
Grading status: Letter grade.

STOR 833. Time Series Analysis. 3 Credits.
Analysis of time series data by means of particular models such as autoregressive and moving average schemes. Spectral theory for stationary processes and associated methods for inference. Stationarity testing.
Requisites: Prerequisites, STOR 634 and 635.
Grading status: Letter grade.

STOR 834. Extreme Value Theory. 3 Credits.
This course covers both mathematical theory and statistical methodology concerned with extreme values in sequences of random variables. IID theory: the three types of extreme value distributions, statistical methods by block maxima and threshold exceedances. Extensions to dependent stochastic sequences: the extremal index and related concepts. Multivariate and spatial extremes, max-stable process. Applications in: engineering and strength of materials; finance and insurance; environment and climate.
Requisites: Prerequisites, STOR 635 and 654.
Grading status: Letter grade.

STOR 835. Point Processes. 3 Credits.
Random measures and point processes on general spaces, Poisson and related processes, regularity, compounding. Point processes on the real line stationarity, Palm distributions, Palm-Khintchine formulae. Convergence and related topics.
Requisites: Prerequisite, STOR 635.
Grading status: Letter grade.

STOR 836. Stochastic Analysis. 3 Credits.
Brownian motion, semimartingale theory, stochastic integrals, stochastic differential equations, diffusions, Girsanov's theorem, connections with elliptic PDE, Feynman-Kac formula. Applications: mathematical finance, stochastic networks, biological modeling.
Requisites: Prerequisites, STOR 634 and 635.
Grading status: Letter grade.

STOR 842. Control of Stochastic Systems in Operations Research. 3 Credits.
Review of Markov decision processes. Monotone control policies. Algorithms. Examples: control of admission, service, routing and scheduling in queues and networks of queues. Applications: manufacturing systems, computer/communication systems.
Requisites: Prerequisites, STOR 641 and 642.
Grading status: Letter grade.

STOR 851. Sequential Analysis. 3 Credits.
Hypothesis testing and estimation when sample size depends on the observations. Sequential probability ratio tests. Sequential design of experiments. Optimal stopping. Stochastic approximation.
Requisites: Prerequisites, STOR 635 and 655.
Grading status: Letter grade.

STOR 852. Nonparametric Inference: Rank-Based Methods. 3 Credits.
Estimation and testing when the functional form of the population distribution is unknown. Rank, sign, and permutation tests. Optimum nonparametric tests and estimators including simple multivariate problems.
Requisites: Prerequisites, STOR 635 and 655.
Grading status: Letter grade.

STOR 853. Nonparametric Inference: Smoothing Methods. 3 Credits.
Density and regression estimation when no parametric model is assumed. Kernel, spline, and orthogonal series methods. Emphasis on analysis of the smoothing problem and data based smoothing parameter selectors.
Requisites: Prerequisites, STOR 635 and 655.
Grading status: Letter grade.

STOR 854. Statistical Large Sample Theory. 3 Credits.
Asymptotically efficient estimators; maximum likelihood estimators. Asymptotically optimal tests; likelihood ratio tests.
Requisites: Prerequisites, STOR 635 and 655.
Grading status: Letter grade.

STOR 855. Subsampling Techniques. 3 Credits.
Basic subsampling concepts: replicates, empirical c.d.f., U-statistics. Subsampling for i.i.d. data: jackknife, typical-values, bootstrap. Subsampling for dependent or nonidentically distributed data: blockwise and other methods.
Requisites: Prerequisite, STOR 655.
Grading status: Letter grade.

STOR 856. Multivariate Analysis. 3 Credits.
Required preparation, matrix theory, multivariate normal distributions. Related distributions. Tests and confidence intervals. Multivariate analysis of variance, covariance and regression. Association between subsets of a multivariate normal set. Theory of discriminant, canonical, and factor analysis.
Requisites: Prerequisite, STOR 655.
Grading status: Letter grade.

STOR 857. Nonparametric Multivariate Analysis. 3 Credits.
Nonparametric MANOVA. Large sample properties of the tests and estimates. Robust procedures in general linear models, including the growth curves. Nonparametric classification problems.
Requisites: Prerequisite, STOR 852.
Grading status: Letter grade.

STOR 881. Object Oriented Data Analysis. 1-3 Credits.
Object Oriented Data Analysis (OODA) is the statistical analysis of populations of complex objects. Examples include data sets where the data points could be curves, images, shapes, movies, or tree structured objects.
Grading status: Letter grade.

STOR 890. Special Problems. 1-3 Credits.
Permission of the instructor.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

STOR 891. Special Problems. 1-3 Credits.
Permission of the instructor.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

STOR 892. Special Topics in Operations Research and Systems Analysis. 1-3 Credits.
Permission of the instructor.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

STOR 893. Special Topics. 1-3 Credits.
Advance topics in current research in statistics and operations research.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

STOR 894. Special Topics at SAMSI. 3 Credits.
Advanced topics in current research in statistics and operations research. This course is held at SAMSI.
Repeat rules: May be repeated for credit. 6 total credits. 2 total completions.
Grading status: Letter grade.

STOR 910. Directed Reading in Operations Research and Systems Analysis. 1-21 Credits.
Permission of the instructor.
Grading status: Letter grade.

STOR 930. Advanced Research. 1-3 Credits.
Permission of the instructor.
Grading status: Letter grade.

STOR 940. Seminar in Theoretical Statistics. 1-3 Credits.
Prerequisite, STOR 655.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

STOR 950. Advanced Research. 0.5-21 Credits.
Permission of the instructor.
Grading status: Letter grade.

STOR 960. Seminar in Theoretical Statistics. 0.5-21 Credits.
Prerequisite, STOR 655.
Grading status: Letter grade.

STOR 970. Practicum. 1-3 Credits.
Students work with other organizations (Industrial/Governmental) to gain practical experience in Statistics and Operations Research.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

STOR 992. Master's (Non-Thesis). 3 Credits.
Permission of instructor.
Repeat rules: May be repeated for credit.

STOR 994. Doctoral Research and Dissertation. 3 Credits.
Permission of instructor.
Repeat rules: May be repeated for credit.

CURRICULUM IN TOXICOLOGY (GRAD)

Contact Information

Curriculum in Toxicology
Visit Program Website (http://www.med.unc.edu/toxicology)

Ilona Jaspers, Director

The Curriculum in Toxicology administers a degree program leading to the award of the Ph.D. in toxicology. The curriculum is an interdisciplinary program, and its faculty is drawn from various administrative units of the schools of medicine, pharmacy, and public health. The training faculty also includes scientists at government laboratories on campus or in the Research Triangle Park (e.g., EPA, NIEHS). The research interests of the faculty include most areas of toxicology, with particular emphasis on understanding the links between the environment and health risks, the mode of action of toxicants and disease pathogenesis, and how emerging knowledge could be translated into prevention strategies, new therapeutic interventions, and an improved scientific basis for risk assessment.

The main areas of research concentration are molecular carcinogenesis, mechanistic toxicology, neurotoxicology, cardiopulmonary toxicology, hepatic toxicology, computational toxicology, developmental toxicology, immunotoxicology, drug and xenobiotic metabolism, and ethanol toxicology. Multidisciplinary efforts are directed at environmental toxicology, systems biology, animal models of human diseases, translational research, and biomarkers. The faculty generally does not conduct research in the areas of aquatic toxicology, forensic toxicology, the ecological aspects of toxicology, or studies in invertebrate systems. The research activities of the Curriculum in Toxicology are conducted in the laboratory facilities assigned to each faculty member by a participating administrative unit.

Applications

Students with interest in the Ph.D. degree in toxicology must apply for Graduate School admission through the Biological and Biomedical Sciences Program. Applications are considered from students who have received or expect to receive a B.S./B.A. or an M.S. degree in a scientific discipline. A desirable background for predoctoral studies in toxicology includes courses in biological sciences (including histology and animal physiology), in chemistry (including analytical and organic), and in mathematics through calculus, although all of these are not absolutely essential. A strong course in general biochemistry accelerates the student's progress. Applicants are evaluated on the basis of undergraduate (and graduate) academic performance, Graduate Record Examination (GRE) scores, and letters of recommendation. Students are accepted on the basis of their achievement and potential. Prior research experience is strongly considered in the assessment of qualifications for admission.

Financial Aid

The curriculum seeks to fund predoctoral students each year. All applicants are considered for financial aid awards.

Doctor of Philosophy

The selection of graduate courses for the Ph.D. degree is influenced by the student's prior academic background. The academic courses that are considered appropriate for graduate training in toxicology include biochemistry, biostatistics, pathology, pharmacology, toxicology, and two elective courses in the specific areas of the doctoral research. In addition, each predoctoral student is expected to participate in other training activities (i.e., student-centered seminars and scientific meetings) while developing the doctoral dissertation project. Attendance and participation in the Curriculum in Toxicology seminar series is required during the entire training period.

A major requirement for the Ph.D. degree is a doctoral dissertation based on the development of the student's research project. Written and oral examinations are required in the fields of general toxicology and the student's research concentration.

Professional Science Master's

The professional science master's in toxicology is associated with the Professional Science Master's Program. For more information about the program, see the Professional Science Master's Program (p. 545).

Code	Title	Hours
PATH 713	Molecular and Cellular Pathophysiological Basis of Disease: Mechanisms of Disease	3
PATH 714L	Molecular and Cellular Pathophysiological Basis of Disease: Laboratory I	2
PATH 715	Molecular and Cellular Pathophysiological Basis of Disease: Systemic Pathology	3
TOXC 442	Biochemical Toxicology	3
TOXC 707	Advanced Toxicology	3
TOXC 722	Toxicology Seminar III	3
BIOS 600	Principles of Statistical Inference	3
GRAD 710	Professional Communication: Writing	1.5
GRAD 711	Professional Communication: Presenting	1.5
GRAD 712	Leadership in the Workplace	1.5
GRAD 713	Applied Project Management: Frameworks, Principles and Techniques	1.5
GRAD 714	Introduction to Financial Accounting	1.5
GRAD 715	Building Your Leadership Practice	0.5
GRAD 721	Research Ethics	1
GRAD 725	Build Your Professional Brand: Develop Job Search Skills and Materials to Make Employers Notice You	3
GRAD 989	Professional Science Master's Internship/ Practicum	3
Elective Courses		7.5
Total Hours		42.5

Professors

Louise M. Ball, Metabolism and Genotoxicity of Environmental Xenobiotics
Thomas W. Bouldin, Neuropathology, Ocular Pathology and Neurotoxicology
Kim R. Brouwer, Pharmacokinetics, Hepatic Transport, Hepatobiliary Disposition, Biliary Excretion, Hepatotoxicity
Bruce A. Cairns, Burn Trauma, Lung Injury following Inhalation Injury, T Cell Response after Burn Injury

Frank C. Church, Thrombosis and Hemostasis, Breast and Prostate Carcinogenesis, Macromolecular Structure-Function
William B. Coleman, Hepatocarcinogenesis, Tumor Suppressor Genes, Biology of Liver Stem Cells, Cancer Epigenetics
Channing J. Der, Ras Protein Superfamily, Signal Transduction and Oncogenesis
Mohanish P. Deshmukh, Molecular Mechanisms of Apoptosis in Neurons and Other Postmitotic Cells
Avram Gold, Structure-Reactivity Relationships in Metabolism and Mutagenicity of Polycyclic Aromatic Hydrocarbons
Milan J. Hazucha, Health Effects of Air Pollutants, Human Studies, Mechanisms of Response
David J. Holbrook Jr., Biochemical Toxicology, Xenobiotic Metabolism
Ilona Jaspers, Cellular Mechanisms of Air Pollutant Toxicity
David G. Kaufman, DNA Replication, Chemical Carcinogenesis
William K. Kaufmann, DNA Metabolism in Radiation and Chemical Carcinogenesis
Nobuyo N. Maeda, Animal Models of Hyperlipidemia, Atherosclerosis and Cardiomyopathy
Terry Magnuson, Mammalian Genetics, Genomics and Development
A. Leslie Morrow, Neurotoxicology and Excitotoxicity of Alcohol
Leena A. Nylander-French, Development of Methods to Monitor and Assess Dermal Exposure to Chemical Carcinogens and Contact Sensitizers
David B. Peden, Translational and Clinical Research in Environmental Lung Disease
Charles M. Perou, Characterization and Classification of Human Breast Tumors into Subtypes of Biological and Clinical Importance
Daniel Pomp, Genetic Architecture of Complex Traits, Gene-Environment Interactions, Polygenic Mouse Models, Obesity
Dale A. Ramsden, V(D)J Recombination and DNA Double Strand Break Repair
Aziz Sancar, DNA Repair and Cancer, Structure and Function of DNA Repair Enzymes, Connection between the Circadian Clock and DNA Excision Repair
Norman E. Sharpless, Tumor Suppressor Genes, Genetics of Cancer and Aging
Miroslav Styblo, Metabolism and Biological Effects of Essential and Toxic Metals and Metalloids
James A. Swenberg, Carcinogenesis, DNA and Protein Adducts, Cell Proliferation, Risk Assessment
Nancy E. Thomas, Molecular Carcinogenesis, Environmental Toxicology, Molecular Epidemiology, Research Translation, Biomarkers
Alexander Tropsha, Molecular Modeling, Computer-Assisted Drug Design, Molecular Dynamics of Proteins, Protein Folding
Cyrus Vaziri, Cell Cycle Responses to Environmental Genotoxins (Benzo[a]pyrene, UV Radiation), DNA Replication and Repair, Genome Stability
Paul B. Watkins, Mechanistic Toxicology, Hepatotoxicology, Research Translation, Biomarkers
Bernard E. Weissman, Chromatin Remodeling and Epigenetic Alterations in Human Cancer
Elizabeth M. Wilson, Environmental Androgens and Antiandrogens, Androgen Receptor Regulation of Prostate Cancer

Associate Professors

Rebecca Fry, Metal-Induced Disease, Prenatal Origins of Disease, Epigenetics
David Neil Hayes, Lung Carcinogenesis, Research Translation, Biomarkers, Computational Toxicology
Jeffrey M. Macdonald, Metabolomics and Fluxomics Using NMR Spectroscopy and Imaging, Tissue Engineering
Scott H. Randell, Identification of Airway Epithelial Stem Cells, Airway Innate Immunity, Pathophysiology of Lung Diseases
W. Kimryn Rathmell, Genetics of Renal Cell Carcinoma
Philip C. Smith, Toxicokinetics and Xenobiotic Metabolism, Peptide Analysis and Disposition

Assistant Professors

Michelle L. Hernandez, Severe Asthma, Development of Novel Therapies against Neutrophilic Airway Inflammation
Folami Ideraabdullah, Epigenetics, Mouse Models
Samir Kelada, Mouse Models of Diversity, Ashthma, Ozone
Robert Maile, Innate and Adaptive Immune Regulation during Health and in Disease
Thomas J. Urban, Genetic and Genomic Studies of a Variety of Human Traits, Including Rare Adverse Drug Reactions such as Drug-Induced Liver Injury (DILI)

Research Professor

Kenneth H. Pearce, Jr., Non-Glycosylated Proprotein Convertase Ectodomain Protein for Apo Crystallization, Small Molecule Inhibitor Co-Crystals, and Fragment Screens

Faculty Affiliates from Other Research Institutions

LifeNet Health

Edward L. LeCluyse, Cellular/Molecular Mechanisms Regulating Liver Cytochrome P450 Enzymes Expression

National Institute of Environmental Health Sciences

Trevor Archer, Molecular Carcinogenesis, Chromatin Structure, Control of Gene Transcription, Epigenetics
Linda S. Birnbaum, Chemical Disposition of Xenobiotics, Mechanistic Toxicology, Dose-Response and Risk Assessment
Michael DeVito, Development of Models for Cumulative Risk to Endocrine Disruptors
Suzanne Fenton, Environmental Effects on Mammary Gland Development and Function
Michael B. Fessler, Induction and Regulation of Innate Immune Response, Toll-Like Receptor Signaling
G. Jean Harry, Developmental Neurotoxicology, Molecular Neuro/Immunotoxicology
Steven R. Kleeberger, Genetic Determinants of Environmental Lung Disease
Gregory S. Travlos, Hematology and Clinical Chemistry
Carmen J. Williams, Environmental Effects on Reproductive Biology and Early Mammalian Embryogenesis, Epigenetics, Endocrine Disruption
Humphrey Yao, Developmental Reproductive Biology

North Carolina Central University

Antonio Baines, Molecular Mechanisms of Disease and Drug Therapy

North Carolina State University

David C. Dorman, Experimental Neurotoxicology, Nasal Toxicology, Pharmacokinetics
Quintiles
Daniel Kemp, Impact of the Microbiome on Drug Discovery

U.S. Environmental Protection Agency

David DeMarini, Mutagenesis, Environmental Protection, Complex Mixtures, Biomarkers
Daniel L. Costa, Cardiopulmonary and Inhalation Toxicology, Health Effects of Air Pollutants
Kevin M. Crofton, Understanding the Consequences of Endocrine Disruption on Neurodevelopment
Robert B. Devlin, Pulmonary Toxicology, Molecular Biology
David Díaz-Sánchez, Translation Research, Environmental Impacts on Human Health, Immunology, Genetic Susceptibility, Epigenetics
Aimen K. Farraj, Comparative Cardiovascular Effects of Biodiesel and Petroleum Diesel Fuel Emissions
M. Ian Gilmour, Pulmonary Toxicology, Immunotoxicology
Mehdi A. Hazari, Neurophysiological Mechanisms Mediating Cardiopulmonary Dysfunction due to Air Pollution Exposure
E. Sidney Hunter, Mechanisms of Developmental Toxicity, Oxidative Stress, Embryonic Stem Cells in Developmental Toxicity
Gary Klinefelter, Male Reproductive Toxicology
Urmila P. Kodavanti, Cardiovascular Diseases and Susceptibility, Air Pollutants, Cardiopulmonary Interactions, Molecular Mechanisms, Genetic and Environmental Factors
Robert Luebke, Modulation of Normal Immune Function by Environmental Agents, Alternative Methods for Screening/Testing Immunotoxicants
Michael C. Madden, Air Pollution Toxicology, Lung Oxidative Stress and Inflammation
Shaun D. McCullough, Epigenetic Mechanisms Underlying Susceptibility and Exposure Effects
Michael G. Narotsky, Developmental Toxicology, Pregnancy Maintenance and Parturition
Stephanie Padilla, Behavioral Toxicology and Neurotoxicology
John M. Rogers, Developmental Toxicology, Teratology, Developmental Biology, Embryology, Nutrition
James M. Samet, Inflammatory Responses to Pollutant Inhalation, Cytokines, Eicosanoids

Washington State University

Mary F. Paine, Drug Xenobiotic Metabolism, Pharmacokinetics, Drug Xenobiotic Interactions

Consultant

Ram (T.V.) Ramabhadran, Neurotoxicological Effects of Environmental Pollutants, Cellular Stress Pathways

TOXC

Advanced Undergraduate and Graduate-level Courses

TOXC 423. Developmental Toxicology and Teratology. 3 Credits.
Emphasizes topics of current research interest relative to the genesis of environmentally caused and genetically based birth defects. One two-hour session per week (evening).
Grading status: Letter grade
Same as: CBIO 423.

TOXC 442. Biochemical Toxicology. 3 Credits.
Required preparation, one course in biochemistry. Biochemical actions of toxicants and assessment of cellular damage by biochemical measurements. Three lecture hours per week.
Requisites: Prerequisite, CHEM 430; permission of the instructor for students lacking the prerequisites.
Grading status: Letter grade
Same as: ENVR 442, BIOC 442.

Graduate-level Courses

TOXC 701. Current Topics in Toxicology. 1 Credit.
In this course, we will read, discuss and present primary research articles, from various research groups, in order to interpret the true meaning of recent scientific findings in the field of toxicology. A general understanding of Biology, Chemistry and Human Health is required.
Grading status: Letter grade.

TOXC 702. Principles of Pharmacology and Physiology. 3 Credits.
Introduces students to the major areas of pharmacology and physiology and serves as a basis for more advanced courses. Three lecture hours a week.
Requisites: Prerequisite, CHEM 430; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: PHCO 702.

TOXC 707. Advanced Toxicology. 3 Credits.
Cellular and physiological basis of toxicity of environmental chemicals, with emphasis on inhalation toxicology, developmental toxicology, immunotoxicology, radiation toxicology, renal toxicology, and neurotoxicology. Three lecture hours per week.
Requisites: Prerequisite, PHCO 702; permission of the instructor for students lacking the prerequisite.
Grading status: Letter grade
Same as: ENVR 707, PHCO 707.

TOXC 721. Toxicology Seminar II. 1 Credit.
Student-conducted presentations and discussions of recent advances in toxicology; emphasis on critical evaluation of published investigations and on organization and oral delivery of presentations. One hour per week.
Grading status: Letter grade.

TOXC 722. Toxicology Seminar III. 1 Credit.
Presentations by outside invited speakers, local faculty, advanced graduate students, and postdoctoral trainees. Topics will cover all areas of research in toxicology. One hour per week.
Grading status: Letter grade
Same as: ENVR 722.

TOXC 735. Regulatory Toxicology-Interacting with regulatory agencies & approval for drug, device, and chemical. 3 Credits.
Regulatory agency fundamentals, regulatory process for drug, medical device, cosmetic and agrochemical products. Industry, regulatory agency representatives and consultants will be invited to speak directly about their regulatory policies, challenges, and expectations. Students will develop and present a regulatory submission package as part of a group project.
Grading status: Letter grade
Same as: GRAD 735.

TOXC 760. Toxicokinetics. 3 Credits.
A quantitative examination of the time course of absorption, distribution, metabolism, excretion, and biologic effects of agents of toxicologic interest. Three lecture hours per week.
Grading status: Letter grade.

TOXC 792. Seminar in Carcinogenesis. 2 Credits.
Permission of the instructor. Survey of classical and current literature on selected critical issues in carcinogenesis. Students discuss experimental methods and observations as well as theories and generalizations. Two seminar hours a week.
Grading status: Letter grade
Same as: PATH 792.

TOXC 821. Scientific Writing. 1 Credit.
Doctoral candidacy in toxicology required. Workshops on scientific writing with special emphasis on fellowship applications and the doctoral research proposal. Students work on several written assignments and are expected complete a draft of their proposals by the end of the semester.
Grading status: Letter grade.

TOXC 901. Research in Toxicology. 3 Credits.
May be repeated. Students register in this course as they formulate their doctoral research projects.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

TOXC 992. Master's (Non-Thesis). 3 Credits.
Students acquire practical experience through an internship program at a non-academic institution where knowledge in toxicology is applied toward its mission. They subsequently prepare a capstone monograph (thesis substitute) that reports on their individualized experience, a requirement for the MPS in Toxicology.
Requisites: Prerequisites, TOXC 442 and TOXC 707.
Repeat rules: May be repeated for credit.
Grading status: Letter grade.

TOXC 993. Master's Research and Thesis. 3 Credits.
May be repeated. Hours and credits to be arranged.
Repeat rules: May be repeated for credit.

TOXC 994. Doctoral Research and Dissertation. 3 Credits.
May be repeated. Hours and credits to be arranged.
Repeat rules: May be repeated for credit.

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Undergraduate

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1997–1998 Undergraduate Bulletin: PDF (http://catalog.unc.edu/archives/1997-98-ugrad.pdf)

Graduate

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