

## COLLEGE OF ARTS AND SCIENCES

Graduate programs in the College of Arts and Sciences lead to either a Ph.D. in marine biology, Master of Arts, Master of Fine Arts, Master of Public Administration, Master of Social Work, or a Master of Science degree. Specialized curricula leading to the Master of Arts in Teaching degree are offered jointly by the College of Arts and Sciences and the Watson School of Education for professional educators. In addition, the College of Arts and Sciences in conjunction with the Cameron School of Business offer a Master of Science in computer science and information systems. All programs in the college are designed to enhance the intellectual competence, maturity, and independence of the master's student, thereby preparing students for careers in business, industry, government, teaching, or for further study at the doctoral level.

## MASTER OF SCIENCE IN BIOLOGY AND MARINE BIOLOGY

The Department of Biology and Marine Biology offers programs of study leading to a Master of Science degree in biology and a Master of Science degree in marine biology. The programs are designed (1) to prepare students for further graduate work leading to the Ph.D.; (2) to provide professional biologists with advanced research and education opportunities; (3) to prepare students as managers of coastal and marine resources, trained to deal with contemporary problems in the environment; or (4) to provide a broad-based graduate program allowing for specialization in the diverse fields of inquiry represented by the faculty of the department. Teachers in secondary schools who wish to obtain graduate level teacher certification should check with the graduate coordinator in the School of Education to determine the current requirements for certification.

### Admission Requirements

Applicants seeking admission to the graduate program in biology or marine biology are required to submit the following to the Graduate School:

1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. Official scores on the Graduate Record Examination (verbal, quantitative, and analytical writing)
4. Three recommendations by individuals in professionally relevant fields
5. Resume

Scores on the verbal, quantitative, and analytical writing, on the Graduate Record Examination (GRE) in the 50th percentile or above are desired. A bachelors degree in a field of biology from an accredited college or university in this country or its equivalent in a foreign institution based on a four-year program is required for admission, as well as an average of "B" or better in the undergraduate major. Undergraduate grades, GRE scores, work and research experience, and recommendations are used in concert to determine acceptability.

### Degree Requirements

1. The program requires 30 semester hours of graduate study.
2. Six semester hours of credit may be transferred from another accredited institution. Grades earned on transfer work must be equivalent to "B" or better.
3. A minimum of 24 semester hours of graduate study must be completed in residence.
4. No more than nine hours of graduate level courses offered by other science departments at UNCW may be applied toward the degree.
5. Undergraduate courses taken to make up deficiencies will not count toward the 30 hours required.
6. All deficiencies must be remedied prior to graduation.
7. The student must successfully complete a comprehensive examination based on prior coursework and an oral defense of the thesis.
8. Each student will present a thesis, based on original research, acceptable to the thesis advisory committee, prior to graduation.
9. Each student must complete an approved course of study within five years of the date of the first registration for graduate study.

### Requirements for Master of Science Degrees

Core courses: required of all students seeking a Master of Science degree in biology or marine biology.

BIO 501 Methods in Scientific Research

(2)

BIO 599 Thesis

(3–6)

### Master of Science in Biology

In addition to the core courses listed above, each student, in consultation with his/her thesis advisory committee, shall devise a program of study that meets the requirements below, complements the thesis research, and satisfies individual needs and interests. Select two of the following:



\*Under certain circumstances, a student may, with the support of his or her faculty advisor, choose to apply to the Ph.D. program before completion of the requirements for the M.S. biology or marine biology degree. Students who choose this path after their first year of core courses and research planning must complete a new application, including letters of recommendation, to enter the Ph.D. program. If accepted, these students would not take their M.S. oral preliminary exam, but would continue on with their study and take the Ph.D. candidacy exam in year three. Students who decide upon a Ph.D. later in their academic career, and who have, thus, already taken their preliminary oral exam, may apply to the Ph.D. program, again with the support of their advisor. Students who choose this path must complete a new application, including letters of recommendation, to enter the Ph.D. program. If accepted, these students may decide to bind a M.S. thesis, or simply continue on with their study and research and take the candidacy exam in year three.

### Documents to be submitted for admission:

All applicants must submit:

1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. Official scores on the Graduate Record Examination (verbal, quantitative, analytical writing and subject test in biology)
4. Three recommendations with accompanying letters by individuals in professionally relevant fields, one from the intended faculty mentor.
5. Official score on the TOEFL (if applicable)
6. Current curriculum vitae
7. Detailed summary of M.S. thesis research (maximum of three pages)
8. Statement of interest for Ph.D. research (maximum of three pages)
9. Reprints or copies of any publications (if applicable)

### Degree Requirements

1. The program requires 78 post baccalaureate (48 post-M.S.) semester hours of graduate study.
2. The maximum amount of credit that a Ph.D. student may count toward a doctorate from a master's degree program is 30 semester hours. This applies whether the master's degree was earned at UNCW or elsewhere. Six post-M.S. semester hours of credit may be transferred from another accredited institution. Grades earned on transfer work must be equivalent to "B" or better and must be approved by the Graduate Advisory Committee.
3. A minimum of 24 semester hours of graduate study must be completed in residence.
4. Each student must pass a Candidacy Exam that includes (1) a written exam consisting of essay questions submitted by the student's Dissertation Committee that are based upon the graduate curriculum and the student's area of research, and (2) an oral examination based on the student's dissertation prospectus. The written exam should be administered no more than 30 days prior to the public presentation and defense of the dissertation prospectus. The Candidacy Exam should be taken before the end of the third year of residence.
5. The student must complete and defend a dissertation based on a research program approved by the student's committee that results in an original, high quality, significant, and substantial body of research.
6. All requirements for the degree must be completed within six years after admission to the Ph.D. program (i.e. post-M.S.).

### Additional requirements for the Ph.D. in marine biology

1. Must have a master's degree or must complete courses and research requirements of a master's degree program as described above.
2. Must complete the following courses:

Graduate Seminars in Marine Biology (2-3 credit hours each; minimum of three different numbered seminars required) (6)

BIO 601	Oceanography and Environmental Science*	(2-3)
BIO 602	Ecology	(2-3)
BIO 603	Physiology and Biochemistry	(2-3)
BIO 604	Cellular and Molecular Biology	(2-3)
BIO 605	Evolution and Biodiversity	(2-3)
BIO 690	Seminar	(1)
BIO 694	Practicum in College Biology Teaching	(2)
BIO 699	Dissertation	(12)

\*Required of all students. Prerequisite: BIO 564 Biological Oceanography or equivalent

In addition to the above requirements, each student, in consultation with his/her dissertation committee, shall select a minimum of 27 hours of elective credit that may include graduate courses and research hours (BIO 698).

**GRADUATE PROGRAM IN BIOLOGICAL SCIENCES**  
**Course Descriptions**

**BIO 501. Methods in Scientific Research (2)** Scientific manuscript preparation and communication techniques: manuscript format, graphics, design of experiments, library use, oral presentation, and writing techniques. Two lecture hours each week.

**BIO 512. Electron Microscopy and Cell Ultrastructure (3)** Prerequisite: Course in cell biology or permission of instructor. A discussion of the general and specialized techniques of transmission and scanning electron microscopy and their application to the elucidation of the structure and function of cell organelles in plants and animals. Three lecture hours each week.

**BIOL 512. Electron Microscopy Laboratory (1)** Corequisite: BIO 512 and permission of instructor. Techniques for fixing, embedding and thin sectioning tissue. Students prepare tissue for observation and analysis and examine the tissue with the transmission electron microscope. Three laboratory hours each week.

**BIO 519. Advanced Topics in Cellular and Molecular Biology (4)** Prerequisite: Upper-level undergraduate or graduate course work in cellular and molecular biology or permission of the instructor. Selected topics in cellular and molecular biology. Includes: cytoskeletal components, membrane dynamics, cellular receptors, metabolism, gene expression, protein structure and function, molecular evolution and extrachromosomal DNA. Three lecture and three laboratory hours each week. May be taken more than once for credit under different topics.

**BIO 526. Advanced Topics in Microbiology (2-4)** Prerequisite: Course in microbiology and organic chemistry or permission of instructor. Study of the taxonomy, morphology, metabolism, genetics and ecology of microorganisms. Emphasis is placed on the current microbiological literature. Lecture and laboratory hours each week. May be taken more than once for credit under different topics.

**BIO 530. Advanced Topics in Evolutionary Biology (3)** The study of adaptation and diversity from both a micro- and macro evolutionary perspective. Principles of population genetics, molecular evolution, phylogeny and systematics are among the topics that will be addressed in lecture and readings. Applications in behavior, physiology, ecology, medicine and conservation are stressed throughout. Three lectures per week. May be taken more than once for credit under different topics.

**BIOL 530. Advanced Topics in Evolutionary Biology Lab (1)** Co- or pre-requisite BIO 530. An introduction to analysis and interpretation of experimental and comparative work in evolution. Generation of new data sets, analysis of new and/or existing data sets and computer simulations will be used in laboratory studies of micro- and macro evolution. Three laboratory hours each week. May be taken more than once for credit under different topics.

**BIO 531. Population Genetics (3)** Prerequisite: Course in genetics. Basic principles of the dynamics of genes within populations. Topics include fitness, polymorphism, genetic equilibrium, and the effects of non-random mating and selection. Three lecture hours each week.

**BIO 534. Advanced Topics in Ecology (3)** Prerequisite: Course in general ecology. Advanced topics in population dynamics, and community ecology. Current ecological theory on population regulation and community dynamics will be examined using a combination of literature readings, class discussion, and formal lectures. Three lecture hours each week. May be taken more than once for credit under different topics.

**BIOL 534. Advanced Topics in Ecology Laboratory (1)** Corequisite or prerequisite: BIO 534. Approaches to analysis and interpretation of ecological data. Using sample and real data sets, various analytical approaches for examining population and community patterns will be examined. Estimation of theoretical parameters from data will also be explored. May be taken more than once for credit under different topics.

**BIO 538. Cytogenetic Methodology (2)** Prerequisite: Course in genetics. Laboratory course introducing techniques for studying and analyzing the chromosomes of a variety of organism including plants and animals. Four laboratory hours each week.

**BIO 539. Advanced Topics in Population Biology (2-4)** Prerequisite: Courses in genetics and ecology or permission of instructor. Study of the ecology, genetics, and evolution of populations. Topics include dynamics of population structure, growth, and regulation; natural selection and the maintenance of genetic variation within populations; differentiation of populations and speciation; evolution of population strategies. Lecture hours each week. May be taken more than once for credit under different topics.

**BIO 549. Advanced Topics in Physiology (4)** Prerequisite: Permission of instructor. Study of topics in physiology for which significant new understanding has been obtained. Consideration is given to those emergent techniques that have permitted the application of scientific methodology to particular physiological problems. Three lecture and three laboratory hours each week. May be taken more than once for credit under different topics.

**BIO 550. Systematic Biology (3)** Prerequisites: A course in statistics is strongly recommended. A survey of methods used in systematic investigations including phylogenetic, cladistic, and eclectic approaches to the analysis of molecular, allozymic, cytogenetic, morphometric, and discrete plant and animal data sets. Nomenclatorial rules and procedures are discussed. Three lecture hours each week.

**BIO 551. Advanced Vertebrate Biology (2)** Prerequisite: Permission of instructor. Individualized instruction in the identification, classification, and ecology of the terrestrial vertebrates of the coastal zone with emphasis on field methodologies. Designed to fill gaps in each student's knowledge of the classes of terrestrial vertebrates. Four laboratory hours each week.

**BIO 558. Biology of Recreational and Commercial Fishes (3)** Prerequisite: Course in ichthyology and permission of the instructor. A study of the major groups of fishes and invertebrates utilized in fisheries, with emphasis on the biology, economic importance, and management of selected groups. Topics focus on contemporary management strategies and needs. Two lecture and three laboratory periods each week.

**BIO 560. Estuarine Biology (4)** Prerequisite: Course in general ecology or permission of instructor. An examination of the unique physical, chemical, and biological interactions within estuaries, emphasizing nutrient cycles and energy flows. Three lecture and three laboratory hours each week.

**BIO 561. Barrier Island Ecology (3)** Prerequisite: Course in general ecology or permission of instructor. Survey of vegetation and physiography of barrier islands. Two lecture and three laboratory hours each week.

**BIO 562. Wetlands of the United States and their Management (3)** Prerequisite: Course in general ecology or permission of the instructor. Ecology and management of wetlands and adjacent communities. Examination of methods used to restore and create wetlands. Two lecture and four laboratory hours each week.

**BIO 564. Biological Oceanography (3)** Prerequisite: Permission of instructor. Discussion of the recent oceanographic literature concerning nutrient cycling, distribution and regulation of oceanic productivity, and advances in methodologies used to study oceanic processes and controlling factors. Three lecture hours per week.

**BIOL 564. Biological Oceanography Laboratory (1)** Corequisite: BIO 564. Laboratory and field investigations of oceanographic problems, including instruction in standard analytical techniques, experimental design, and analysis, with an emphasis on biological responses to physical and chemical factors. Three laboratory hours per week.

**BIO 566. Behavioral Ecology of Reef Fishes (3)** Prerequisite: Course in ichthyology or permission of instructor. An ecological and ethological approach to the study of reef fishes, including theories and problems dealing with ecological niche, competition, social systems, and population biology. Two lecture and three laboratory hours each week.

**BIO 568. River Ecology (3)** Prerequisite: course in general ecology or permission of instructor. The biology, ecology, chemistry, and physical nature of streams, rivers, and watersheds. Biodiversity, endangered species, pollutants, the regulatory structure, and river politics will be discussed. Three combined lecture and lab hours per week, plus field trips to local rivers, streams and tidal creeks.

**BIO 575. Taxonomy of Aquatic and Wetland Plants (3)** Prerequisite: Course in plant taxonomy or permission of instructor. Discussion, collection, and identification of vascular plants found in the aquatic and wetland habitats of coastal North Carolina. Extensive field work and individualized instruction in collection and identification techniques. Two lecture and three laboratory hours each week.

**BIO 577. Experimental Mycology (3)** Prerequisite: Graduate status. An accelerated introduction to general mycology with emphasis on the role of fungi as friend and foe in various ecosystems. The use of fungi as experimental tools as well as modern technology useful to their study are considered. Two lecture and three laboratory hours each week.

**BIO 578. Biology of Harmful Algae (3)** Prerequisite: BIO 205, BIO 446, or consent of instructor. Identification (taxonomy), ecology, physiology and toxin production by both marine and freshwater microalgae. Toxin structure and mode of action, effects on humans and public health, environmental damage and possible mitigation/management strategies.

**BIO 579. Advanced Topics in Organismic Biology (2–4)** Prerequisite: Permission of instructor. Advanced study of the ecology, natural history, behavior, or systematics of selected groups of organisms. Lecture and laboratory hours each week. May be taken more than once for credit under different instructors.

**BIO 580. Field Studies in Biology (1–6)** A research experience-oriented field course offered in selected regional locales. Emphasis is placed on distribution, taxonomy, and ecology of animal and/or plant organisms.

**BIO 585. Special Topics in Advanced Biology (1–6)** Designed to deal with selected topics not considered in detail in regular course offerings. More than one topic may be taken for credit.

**BIO 590. Biomechanics (4)** Prerequisite: Course in animal biology. A study of the interactions of organisms with their physical environment. Concepts from fluid and solid mechanics are applied to biological form and function. Three lecture and three laboratory hours each week.

**BIO 591. Directed Independent Study (1–4)** May be repeated under different subtitles.

**BIO 596. Critique of Scientific Literature (1)** Review and critique of grant proposals, manuscripts, and published papers pertaining to biological research.

**BIO 599. Thesis (1–6)**

**BIO 601. Oceanography and Environmental Science (2-3)** Prerequisite: BIO 564 or permission of instructor. Topics and methods in biological oceanography and environmental science. Required of all Ph.D. candidates. May be repeated under different subtitles.

**BIO 602. Ecology (2-3)** Prerequisite: permission of instructor. Topics and methods in marine ecology. May be repeated under different subtitles.

**BIO 603. Physiology and Biochemistry (2-3)** Prerequisite: permission of instructor. Topics and methods in the physiology and biochemistry of marine organisms. May be repeated under different subtitles.

**BIO 604. Cellular and Molecular Biology (2-3)** Prerequisite: permission of instructor. Topics and methods in the cellular and molecular biology of marine organisms. May be repeated under different subtitles.

**BIO 605. Evolution and Diversity (2-3)** Prerequisite: permission of instructor. Topics and methods in the evolution and diversity of marine organisms. May be repeated under different subtitles.

**BIO 690. Seminar (1)** For resident students, attendance at departmental seminars is required. Candidates are required to present two scientific seminars (dissertation proposal and dissertation defense) at UNCW within four years of residency. Candidates are expected to orally present their research at least once at other institutions or (inter-) national scientific meetings. Credit is awarded during the candidate's last semester of residency.

**BIO 694. (594) Practicum in College Biology Teaching (2)** An introduction to theory, research, and practice in college biology teaching. Combines supervised internship in biology teaching with formal classroom instruction. For graduate students who have been awarded teaching assistantships in the Department of Biology and Marine Biology and others with permission of instructor. Ph.D. students will be required to engage in limited formal instruction. Two semester hours per week.

**BIO 698. Research (1-6)** Credit hours taken by students in pursuing their dissertation research. May be taken more than once for credit.

**BIO 699. Dissertation (1-12)** Credit hours taken by students in analyzing their research data and writing their dissertation.

## MASTER OF SCIENCE IN CHEMISTRY

The Department of Chemistry and Biochemistry offers a program of study leading to the Master of Science degree in chemistry. The objectives of this program are to give students who have an undergraduate foundation in chemistry the opportunity to engage in advanced course work, in-depth study, and independent research in order to acquire the skills of assimilating known information and generating new knowledge. These problem-solving skills provide the foundation for future contributions by the graduates in various areas of chemistry, whether they seek employment directly or choose to undertake further graduate study elsewhere.

### Admission Requirements

Applicants seeking admission to the graduate program in chemistry are required to submit the following to the Graduate School:

1. An official application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. Official scores on the Graduate Record Examination (verbal, quantitative, analytical writing)
4. Three recommendations by individuals in professionally relevant fields. An acceptable score on the Graduate Record Examination is expected. A bachelor's degree with a concentration in chemistry from an accredited college or university in this country, or its equivalent in a foreign institution based on a four-year program, is required for admission, along with a "B" average or better in chemistry courses. Admission decisions are based upon several factors, and where other indicators of success warrant, individuals who fall below the established criteria in one of the areas may be considered for admission.

### Degree Requirements

1. Programs leading to the Master of Science degree require a minimum of 30 semester hours of graduate study. No more than 12 credit hours from those courses cross listed as 400/500 may be applied toward the degree. Up to eight hours of graduate courses offered by other departments may be approved by the student's advisory committee. A maximum of six hours of credit may be transferred from another accredited institution. Grades earned on transfer work must be equivalent to a "B" or better, and courses must be acceptable to the student's advisory committee. A minimum of 24 semester hours of graduate study must be completed in residence.
2. Deficiencies in a student's undergraduate preparation will be ascertained by a committee of faculty members in the Department of Chemistry and Biochemistry. Placement tests in the basic areas of chemistry may be administered to incoming students at the discretion of the faculty committee to assist with evaluation of deficiencies. Any deficiencies must be remedied prior to graduation.
3. A thesis reporting the results of the student's original research project must be submitted by the student and approved by the student's advisory committee. Each student will present a seminar on his or her research project.
4. The student must successfully complete a comprehensive examination and an oral defense of the thesis.
5. The program shall be completed within five years of the date of first registration for graduate study.

### Required Core Courses

CHM 501 Introduction to Chemical Research	(2)
CHM 595 Graduate Seminar	(2)
CHM 599 Thesis	(3-6)

And at least three of the following courses:

CHM 516 Advanced Organic Chemistry	(3)
CHM 521 Advanced Physical Chemistry	(3)
CHM 536 Advanced Analytical Chemistry	(3)
CHM 546 Advanced Inorganic Chemistry	(3)
CHM 568 Advanced Biochemistry	(3)

## BACHELOR'S/MASTER'S DEGREE CHEMISTRY PROGRAM

The Department of Chemistry and Biochemistry offers a bachelor's (certified)/master's degree program which is designed to provide a BS chemistry student a means to complete some requirements for the MS chemistry degree. The key feature of the program is that some upper level chemistry courses count for the BS degree and undergraduate electives as well as the MS degree. This allows a total of 18 credit hours to be counted towards both the BS and MS (6 hours of coursework (CHM 445/545 and CHM 491/591 or CHM 499/591) to be counted towards the BS and 12 graduate hours in chemistry counted towards undergraduate electives.

A. Students who have completed 50 hours of chemistry and collateral courses required for the B.S. in chemistry degree with a GPA of 3.50 or higher by the middle of the junior year may

- fulfill the ACS Bachelor of Science requirement in inorganic chemistry by taking CHM 545 (Inorganic Chemistry, 3 credit hours) preferably in the second semester of their third year. Both undergraduate and graduate credit will be awarded for this course.
- fulfill part of the ACS laboratory requirements (145 lab hours) by counting a total of 3 hours of research, preferably performed during the summer session between the 3<sup>rd</sup> and 4<sup>th</sup> year, toward the B.S. degree (3 credit hours of CHM 491 or 499), and an additional 3 credit hours of research (CHM 491/591 or 499/591) preferably performed during the fall semester of the fourth year.
- count 4 graduate courses (12 semester hours) as undergraduate electives.
- complete the basic studies requirements.

The student will complete the M.S. degree requirements by taking 16 credit hours of graduate course work, 3 credit hours of DIS (CHM 591), preferably in the summer between the 4<sup>th</sup> and 5<sup>th</sup> year, and 8 credit hours of graduate courses (thesis research and seminar), preferably in the 5<sup>th</sup> year. Up to one additional credit hour of graduate thesis work could be taken during the summer session immediately following the 5<sup>th</sup> year. The actual graduation time for the M.S. degree after all coursework is completed will vary based on the progress of the student's research topic.

B. During a student's junior year they must obtain a graduate advisor (thesis research director) and submit the standard application for admission to the Graduate School including: an application form, application fee, references, transcripts, and GRE scores to the Graduate School. In addition, a graduate degree plan (signed by the prospective student, their proposed graduate advisor, the combined degree program coordinator and graduate coordinator) must be submitted to the combined degree program coordinator before the end of the junior year. Departmental permission to apply to the combined B.S. (certified)/M.S. degree program does not guarantee admission to the Graduate School. Admission is contingent of meeting eligibility requirements at the time of entering the graduate program and continued support from the thesis research director.

C. Upon review of the submitted materials by the Graduate School, a letter of acceptance (or denial) to the master's program, will be sent to the student and copied to the graduate coordinator. Acceptance will be provisional and contingent upon meeting specified degree requirements, including completion of the bachelor's degree.

D. A student who is ineligible to participate, continue in, or withdraws from the combined B.S. (certified)/M.S. degree program cannot double count any courses for both bachelor's and master's degree.

For more details see the department chair or the graduate coordinator.

**GRADUATE PROGRAM IN CHEMISTRY**  
**Course Descriptions**

**CHM 501. Introduction to Chemical Research (2)** Scientific proposal and manuscript preparation. Communication techniques. Experimental design and data analysis. Computer applications. Library use. Laboratory safety. Two hours each week.

**CHM 512. Nuclear Magnetic Resonance Spectroscopy (2)** Prerequisite: Two semesters of organic chemistry. Interpretation and acquisition of proton and carbon, one and two dimensional NMR spectra. Molecular structure elucidation of organic molecules using NMR spectroscopy. One hour of lecture and two hours of lab per week.

**CHM 516. Advanced Organic Chemistry (3)** Prerequisite: Two semesters of organic chemistry. Study of contemporary synthetic organic chemistry. Topics may include chiral synthetic methods, natural products synthesis, bioorganic chemistry, relationships between structure and reactivity and the role of reactive intermediates, with emphasis placed on examples from the recent literature.

**CHM 517. (417) Medicinal Chemistry (3)** Prerequisite: Two semesters of organic chemistry. Systematic study of the chemistry and biological activity of hormones, vitamins, drugs affecting the nervous system, and other miscellaneous agents.

**CHM 521. Advanced Physical Chemistry (3)** Prerequisite: CHM 520 (420) or equivalent. The study of quantum statistical mechanical basis of thermodynamics, including the behavior of solids and liquids. Kinetics of chemical reactions, particularly the microscopic picture of chemical reactions based on quantum statistical mechanics.

**CHM 522. Rates and Mechanisms (3)** Prerequisite: Physical chemistry. Chemical kinetics and reaction mechanisms. Transition state and collision theories. Catalysis.

**CHM 525. (425) Computational Chemistry (3)** Prerequisite: Physical chemistry. Theory and practice of computational chemistry, including molecular mechanics, semi-empirical and ab initio molecular orbital theory, density functional theory, and molecular dynamics. Two hours of lecture and two hours of computer lab hours each week.

**CHM 536. Advanced Analytical Chemistry (3)** Prerequisite: Organic chemistry, quantitative analysis. Application of modern analytical methods to chemical problems. Emphasis upon chemical information, structural and quantitative, obtainable from these techniques. Topics may include modern spectroscopic, chromatographic, electrochemical, bioanalytical or isotropic techniques.

**CHM 545. (445) Inorganic Chemistry (3)** Prerequisite: Physical chemistry and quantitative analysis, or equivalent. Study of periodic relationships: crystal lattice theory; transition metals and ions; crystal field theory; organometallic structures and reactions; and reaction mechanisms.

**CHM 546. Advanced Inorganic Chemistry (3)** Prerequisite: CHM 545 or equivalent. Study of contemporary inorganic chemistry. Topics may include organometallic, bioinorganic chemistry, group theory, and/or current topics in contemporary inorganic chemistry.

**CHM 567. (467) Biochemical Techniques and Instrumentation (2)** Prerequisite or corequisite: CHM 365 or equivalent. Theory and practice of advanced biochemical techniques. Topics may include buffer and reagent preparation, protein assay, protein purification, electrophoresis, enzyme kinetics, vesicle construction, DNA isolation, and molecular visualization and modeling. Four hours each week.

**CHM 568. Advanced Biochemistry (3)** Prerequisite: CHM 365 or equivalent and CHM 321. Topics may include protein structure, stability, and visualization, enzyme kinetics and mechanisms including enzyme activators, inhibitors, and inactivators, ligand recognition and binding, and enzyme regulation.

**CHM 574. Aquatic Chemistry (3)** Prerequisite: Permission of the instructor. The chemistry of aqueous solutions, including use of activity coefficients, acid-base and buffer concepts, gas solubility, results of carbon dioxide dissolution, trace metal speciation, oxidation-reduction processes, photochemistry and mineral solubility. Concepts will be applied to laboratory solutions and natural waters.

**CHM 575. Chemical Oceanography (3)** Prerequisite: General chemistry. An oceanography course is recommended. Sources, distribution, forms of occurrence, and reactions of chemical species in seawater. Chemistry of concentrated aqueous solutions. Patterns of global ocean circulation. Air-sea and sediment-seawater interactions. Estuarine processes and reactions. Human impact on the oceans.

**CHM 576. (PHY 576) Chemical and Physical Analysis of Seawater (3)** Prerequisite: Permission of instructor. Study of modern chemical and physical measurements of seawater including salinity, alkalinity, pH, nutrients, and dissolved oxygen. Several class periods may also be devoted to working aboard an oceanographic research vessel while at sea.

**CHM 578. (478) Aquatic Toxicology (3)** Prerequisite: Organic Chemistry. Topics in aquatic toxicology, including toxicity testing; transport, transformation and ultimate distribution and fate of chemicals in the aquatic environment; and the performance of hazard risk assessments on aquatic ecosystems exposed to chemical insult.

**CHM 579/MS 579. Role of the Oceans in Human Health (3)** Prerequisite: CHM 212, BiO 110, or consent of instructor. Discovery, structure, and biological activity of marine bioactive compounds, chemotaxonomy, pharmaceutical leads, marine biotoxins, structure, mode of action, regulation and monitoring, the producing organisms, how (biosynthesis) and why these compounds are made. Two lectures per week.

**CHM 585. (485) Industrial and Polymer Chemistry (3)** Prerequisites: Physical chemistry and two semesters of organic chemistry. Properties, synthesis, and reactions of major industrial chemicals; synthetic plastics, soaps and detergents; petrochemicals; paints and pigments; dyes; pharmaceutical and nuclear industries; mechanism of polymerization; copolymerization; physical and chemical properties of polymers; polymer characterization; advances in polymer techniques.

**CHM 586. (486) Fundamentals of Heterocycles with Emphasis on Pharmaceuticals (3)** Prerequisites: 2 semesters of Organic Chemistry. Well over half of all known organic compounds and most pharmaceuticals are heterocycles (containing an atom other than C in the ring). This course will examine their chemistry. Topics include the nomenclature, properties, synthesis, and pharmaceutical applications of heterocycles.

**CHM 590. Special Topics (1–3)** Study of a topic or technique in chemistry not covered in regular courses. May be repeated for credit.

**CHM 591. Directed Individual Study (1–6)** Directed Independent Study.

**CHM 595. Graduate Seminar (1)** Discussion by students, faculty, and guest lecturers of research ideas and/or research results. May be repeated two times for credit.

**CHM 599. Thesis (3–6)** Laboratory research for thesis and thesis preparation.

NOTE: Additional courses offered by the Department of Chemistry are found under "science courses" in the section on "Additional Graduate Courses."

## MASTER OF FINE ARTS IN CREATIVE WRITING

The Department of Creative Writing offers an intensive studio-academic apprenticeship in the writing of fiction, poetry and creative nonfiction leading to the Master of Fine Arts degree in creative writing. Courses include workshops in the three genres, special topics and forms courses, as well as a range of courses in literature. While students are accepted in, and expected to demonstrate mastery of, one genre, they are encouraged to study, and must show proficiency in, a second genre. Students, in consultation with their advisors, tailor their course schedules to their own professional and educational interests, selecting a variety of courses in creative writing, literature, criticism, rhetoric and composition, film studies, and applicable cultural studies. Though the M.F.A. is a terminal degree designed for writers wishing to pursue various career paths in teaching, writing, publishing, and community arts organization, students are urged to pursue the degree primarily as a way of mastering their art by rigorous study and practice among a community of other dedicated writers. The M.F.A. degree without supporting publication credentials does not guarantee employment.

### Admission Requirements

Applicants seeking admission to the Master of Fine Arts Program in Creative Writing are required to submit the following five items to the Graduate School before the application can be processed.

1. A typed manuscript in the applicant's primary genre, labeled "poetry," "fiction," or "creative nonfiction": 15 pages of poetry, 30 pages of fiction, or 30 pages of creative nonfiction (double-space prose, single-space poetry). The manuscript should demonstrate mastery of basic craft and unmistakable literary promise. Applicants are advised not to apply with a mixed-genre manuscript.
2. An application for graduate admission.
3. Official transcripts of all college work (undergraduate and graduate).
4. At least three recommendations from individuals in professionally relevant fields addressing the applicant's achievement and promise as a writer and ability to successfully complete graduate study.
5. An essay (300-500 words) on the applicant's goals in pursuing the M.F.A., including previous educational experience and information relevant to any teaching assistantship application.

An applicant must have successfully completed an appropriate undergraduate degree (usually, but not necessarily, a B.A. in English or a B.F.A. in creative writing), with at least a "B" average in the major field of study. Acceptable fulfillment of all the above constitutes the minimum requirements for, but does not guarantee, admission to the M.F.A. program.

In general, we are seeking candidates who show artistic commitment and literary promise in their writing and whose academic background indicates they are likely to succeed not only in graduate study but as publishing professional writers. Therefore, in evaluating candidates, the admissions committee places great emphasis on the quality of the manuscript.

The deadline for receiving applications is January 1 for the academic year beginning fall semester. All interested applicants will be considered for graduate assistantships, which will be awarded on a competitive basis as they become available. Applicants seeking graduate assistantships are urged to complete their applications well before the deadline.

### Degree Requirements

1. An M.F.A. candidate must successfully complete a minimum of 48 semester hours of graduate study: 21 hours in writing; six hours of thesis; and 21 hours in other graduate literature courses, (CRW 501, 503, 543, 545, 547, 580, 581, 598; ENG 502, 504, 505, 506, 507, 508, 509, 511, 512, 513, 514, 560, 561, 563, 572, 580) with an option of substituting up to six of those hours of study in a related discipline, as determined by the student's advisor, the MFA coordinator, and the chair of the Department of Creative Writing.
2. A maximum of six semester hours of graduate course credit may be transferred from another accredited institution in partial fulfillment of the M.F.A. UNCW regulations will be applied in determining the transferability of course credits, and requests for transfer credit must be approved by the MFA coordinator, the chair of the Department of Creative Writing, and the Graduate School.
3. An M.F.A. candidate is required to complete at least 12 hours of writing workshop in a primary genre, and at least five hours of workshop, or a combination of workshops and forms courses, in a secondary genre.
4. A minimum GPA of 3.0 (on a 4.0 scale) must be maintained in all graduate course work; a "B" average is required for graduation.
5. An M.F.A. candidate must complete a substantial book-length thesis manuscript of literary merit and publishable quality acceptable to the thesis committee: this ordinarily will be a novel; a novella; a collection of short stories, poems, or essays; a single long poem; a long nonfiction narrative; or some combination of the foregoing.
6. An M.F.A. candidate must pass the Master of Fine Arts examination.
7. All requirements must be completed within five calendar years.

## GRADUATE PROGRAM IN CREATIVE WRITING

### Course Descriptions

**CRW 501. Research for Creative Writers (3)** Instruction for writers of creative nonfiction, fiction, poetry, and scripts in searching electronic, print, and physical archives; historical artifacts; the geographical and built environment; and living sources, with special emphasis on interviewing techniques and ethics and on how to gracefully integrate research into artistic writing.

**CRW 503. Creative Writing Pedagogy: Theory and Practice (3)** Analysis of current theories of creative writing pedagogy and classroom practices; examination of teaching and learning theories related to the workshop model, process exercises, revision techniques, and the group dynamics of teaching creative writing. Enrollment is mandatory for and limited to graduate teaching assistants.

**CRW 523. Bookbuilding (3)** Introduction to the principles of effective graphic design and typography for book publishing, using desktop publishing applications in a computer lab setting and including hands-on production of several publications. Includes survey history and future trends in printing and publishing.

**CRW 524. Literary Magazine Practicum (1-3)** Practical course in the publication of a national literary journal. Assignments include reading submissions, writing submission reports, and serving on the editorial staff of the journal. Examination of the practical business of running a magazine, including editorial, marketing, and sales decisions. M.F.A. students may repeat for credit without limit.

**CRW 525. Special Topics in Publishing (1-3)** Intensive examination of a special area of publishing, such as book arts, electronic publishing, editing poetry, or a course taught by a guest instructor. May be repeated for credit under different subtitles.

**CRW 530. Creative Writing Workshop (1-3)** Instruction in at least two of the following genres: Fiction, Poetry, Creative Nonfiction, Scriptwriting. Focus determined by instructor. Includes classroom critique of students' work and work by professionals. M.F.A. students may repeat for credit without limit.

**CRW 542. Poetry Writing Workshop (1-3)** Instruction in writing poetry, with classroom critique of students' work and work by professionals. Includes study of publishing markets. M.F.A. students may repeat for credit without limit.

**CRW 543. Forms of Poetry (1-3)** Instruction in specific formal issues in the tradition of poetry. Assignments will include original poetry, extensive reading, and may also include writing critiques, papers, exercises, etc. May be repeated once for credit.

**CRW 544. Fiction Writing Workshop (1-3)** Instruction in writing fiction, with classroom critique of students' work and work by professionals. Includes study of publishing markets. M.F.A. students may repeat for credit without limit.

**CRW 545. Forms of Creative Nonfiction (1-3)** Instruction in specific formal issues in the tradition of nonfiction. Assignments will include original nonfiction, extensive reading, and may also include writing critiques, papers, exercises, etc. May be repeated once for credit.

**CRW 546. Workshop in Writing the Novel I (3)** Instruction in conceiving, outlining, and writing the novel, with special emphasis on structure and narrative design. Includes classroom critique of student writing as well as study of published novels and writings on aesthetics. M.F.A. students may repeat for credit without limit.

**CRW 547. Forms of Fiction (1-3)** Instruction in specific formal issues in the tradition of fiction. Assignments will include original fiction, extensive reading, and may also include writing critiques, papers, exercise, etc. May be repeated once for credit.

**CRW 548. Workshop in Writing the Novel II (3)** Prerequisite: CRW 546 or consent of instructor. Instruction in developing, writing, and finishing the novel, with special emphasis on continuity and profluence. Includes classroom critique of student writing as well as study of published novels and writings on aesthetics. M.F.A. students may repeat for credit without limit.

**CRW 550. Workshop in Creative Nonfiction (1-3)** Instruction in writing essays, articles, and/or memoirs, with classroom critique of students' work and work by professionals. Includes study of publishing markets. M.F.A. students may repeat for credit without limit.

**CRW 560. Publishing Practicum (1-3)** Prerequisite: CRW 523 or CRW 524, and permission of instructor. Practical course in book publishing, in conjunction with the CRW Publishing Laboratory. Hands-on experience editing, designing, and producing publications and promotional materials for the Pub Lab imprint. M.F.A. students may repeat for credit without limit.

**CRW 580. Special Studies in Creative Writing (1-3)** Intensive examination of a special area of creative writing. May be repeated for credit under different subtitles.

**CRW 581. Studies in International Writing and Translation (1-3)** Intensive examination of specific formal issues in international writing and translation. Assignments will include extensive reading, and may also include translation projects, written critiques, papers, and exercises. May be repeated once for credit.

**CRW 591. Directed Independent Study (1-3)** Students must secure permission of the graduate coordinator. May be taken twice for credit. May not be taken concurrently with CRW 599 or used for thesis research.

**CRW 598. Internship in Applied Creative Writing (1-6)** Prerequisite: 12 hours of graduate course credit or permission of instructor. Maximum hours for degree credit is six hours. Supervised professional experience in an area of creative writing studies including but not limited to editing, publishing, writing, writing instruction, and film production. Specific goals and assignments to be set and evaluated by instructor.

**CRW 599. Thesis (1-6)**

## MASTER OF ARTS IN CRIMINOLOGY AND PUBLIC SOCIOLOGY

The Department of Sociology and Criminology offers a program of study that leads to the Master of Arts in degree in criminology and public sociology. The goal of the program is to train students to use theoretical and methodological tools that will allow them to acquire and apply specific information to particular social problems or to improve the quality of life. MA students will be able to concentrate in either criminology or public sociology. Graduates will be prepared for careers as evaluators, researchers, planners, managers, advisors, program directors and policy makers. The program will also provide a strong foundation for those who seek to pursue the Ph.D. in traditional criminology and sociology programs.

### Admission Requirements

Applicants are required to submit the following to the Graduate School:

- An application for graduate admission
- 1. Official transcripts of all college work (undergraduate and graduate)
- 2. Official scores on the Graduate Record Examination (GRE)
- 3. Three recommendations by individuals in professionally relevant fields; at least two must be from academics
- 4. An essay explaining how the MA in criminology and public sociology may assist the candidate in meeting her or his personal goals
- 5. Students must have a 3.0 overall undergraduate GPA

### Degree Requirements

1. The program requires a minimum of 33 semester hours of graduate study, 27 of which must be in criminology and public sociology.
2. All students must complete a minimum of 27 semester hours of course work plus six (6) hours of either internship (CRM/SOC 598) or thesis (CRM/SOC 599).
3. Only six (6) hours of graduate coursework outside the department will count towards graduate degree credit requirements.
4. Students may elect between an internship option CRM/SOC 598 (6 hours) or a thesis option CRM/SOC 599 (6 hours). Each student must successfully, orally, defend a thesis or internship proposal prior to registering for thesis or internship hours.
5. Each student must pass an oral defense of either the thesis or internship.
6. All students are required to take 15 hours of core coursework: CRM/SOC 500, CRM/SOC 502, CRM/SOC 503, CRM/SOC 504, CRM/SOC 505.
7. All students are required to take the Qualifying Oral Exam near the end of completion of the first 9 hours of MA study. The purpose of the qualifying exam is to: 1) assess the candidate's status in the program; 2) have the candidate declare a concentration in either criminology or public sociology; 3) have the candidate design a course of study for the remainder of the program, with the assistance of graduate faculty.
8. Students must earn a "B" or above in all graduate courses taken to earn graduate credit in the program.
9. Transfer work must be equivalent to a "B" or better, and courses must be acceptable to the student's advisory committee. A minimum of 27 semester hours of graduate study must be completed in residence.
10. This program shall be completed within five years of the date of first registration for graduate study.

### Required Courses: Five courses are required for all students. (15 credit hours)

CRM/SOC 500	Social Research Methods	(3)
CRM/SOC 502	Evaluation, Methods and Policy	(3)
CRM/SOC 503	Sociological Theory	(3)
CRM/SOC 504	Data Analysis	(3)
CRM/SOC 505	Pro Seminar	(3)

### Student must complete one of the following. (6 credit hours)

CRM/SOC 598	Internship	(6)
or		
CRM/SOC 599	Thesis	(1-6)

Additional required hours should be chosen from approved electives. (12 credit hours)

## GRADUATE PROGRAM IN CRIMINOLOGY AND PUBLIC SOCIOLOGY

### Course Descriptions

**CRM/SOC 500. Social Research Methods (3)** Analysis of process of social research in terms of problem definition, research design, data sources, and methods of data analysis. Emphasis will be placed on the application of research methods to practical problems.

**CRM/SOC 502. Evaluation, Methods, and Policy (3)** Advanced research methods course focusing on the techniques and principles of evaluation research. Emphasis will be on methods of evaluation and research design, instrument development, data collection techniques within a public/applied setting. Additionally, students will become familiar with the policy implications and consequences of evaluation research.

**CRM/SOC 503. Sociological Theory (3)** Analysis of sociological theories and theoretical perspectives, with emphasis on their practical application to contemporary society.

**CRM/SOC 504. Data Analysis (3)** The purpose of this course is to instruct students in techniques of quantitative data analysis. It will explore techniques to describe and make inferences from univariate, bivariate and multivariate data. Students will learn to evaluate scholarly literature that makes use of such methods. They will also have the opportunity to apply these statistics to current social problems.

**CRM/SOC 505. Pro Seminar (3)** Focus on the professional role of social scientists in different types of organizational contexts as constrained by organizational policies and protocol, professional codes of ethics, budgets, client needs, politics, professional commitment, technology, inter-organizational linkages, and other considerations.

**CRM/SOC 506. Qualitative Data Analysis (3)** An introduction to qualitative methods of data gathering and analysis in sociology and criminology. Specific content will cover: participant observation, in-depth interviewing, content analysis, field methods. Students are required to collect and analyze qualitative data. A final research paper demonstrating these methods is required.

**CRM/SOC 507. Community-Based Participatory Research Methods (3)** Focus on engaged methodologies that facilitate community-based participatory research (CBPR). Attention will be given to the history of CBPR, ethics, logic and methods of community-based research, research design, conceptualization, measurement and sampling, modes of observation, data gathering and analysis and democratization of the research process through validating multiple forms of knowledge.

**CRM/SOC 515. Advanced Victimology (3)** A sociological examination of victimization and formal responses to victimization. Empirical patterns of specific forms of victimization will be discussed, including: domestic violence, sexual violence, corporate violence, political violence, etc.

**CRM 510. World Criminal Justice Systems (3)** Comparative study of criminal justice systems throughout the world. Attention to historical, structural, political, legal and philosophical similarities and differences.

**CRM 516. Crime and Social Control (3)** A theoretical foundation for understanding formal social control strategies in response to crime patterns. Will present a history of incarceration, decarceration, diversion, and rehabilitation programs.

**CRM 517. Death Penalty (3)** A sociological examination of capital punishment in the USA. Emphasis will be placed on US Supreme Court decisions, sociological research on various aspects of deterrence, racial bias, public opinion, and wrongful convictions.

**CRM/SOC 530. Restorative Justice (3)** Restorative justice practices will be examined theoretically, empirically, and historically. Emphasis will be placed on Australia, New Zealand, the United Kingdom, Canada and the United States. Specific content includes: juvenile crime, violence against women, aboriginal/indigenous justice, victims and offenders needs.

**CRM/SOC 535. Sociology of Deviant Behavior (3)** Examines what comes to be considered, and treated, as deviant behavior in historical, cultural, and societal context, linking theories as to the causes and appropriate management of deviant behavior to changes in that larger context.

**CRM 540. Race, Class, Gender and Crime (3)** Examines the intersection of race, class, and gender with regard to criminal offending and victimization. Emphasis will be placed on the application of criminological theory to the explanation of variations in patterns of crime in relation to race, class, and gender. Additionally, this course will examine the policy implications of the current explanations.

**CRM/SOC 549. Sociology of Law. (3)** Review of theoretical and empirical developments in the sociology of law, including classical and modern sociological theories of law and selected sociological themes of law in various social settings.

**CRM 560. Interpersonal Violence (3)** A sociological approach to the study of interpersonal violence, including discussion of theory, methods, and empirical findings of structural, cultural, and situational criminological research on the topic.

**CRM/SOC 561. Seminar in Criminology (3)** (recommended for all graduate criminology students) An overview of the breadth of topics that comprise the discipline of criminology, with emphases on theoretical explanations and the various reactions to crime in society.

**CRM 570. Drug Problems and Crime (3)** Results from numerous studies have found illicit drugs, especially illicit drug sales, are linked to a myriad of crime, especially violent crime. The role of drugs in crime events and patterns of use are a focus of the course. Additionally, the topics of addiction, drug markets, both national and international and drug policy implementation and change will be addressed.

**CRM/SOC 580. Social Justice (3)** A sociological examination of social justice, and policies that proclaim to promote social justice in the United States. The class examines various forms of institutionalized inequality on the basis of social class, race/ethnicity, gender, and sexuality. Social policy solutions are also examined.

**CRM 585. Communities and Crime (3)** The course is designed to immerse students in research and policies related to communities and crime. The course will cover classic and contemporary contributions from the social sciences, with a primary focus on crime and place across American space along with occasional stops outside the U.S. borders. The course will also examine how communities deal with, and are affected by, crime and criminal offenders.

**CRM/SOC 591. Directed Independent Study (1-3)** Independent investigation of research topic in a selected area of criminology or public sociology.

**CRM/SOC 592. Special Topics in Criminology and Public Sociology (3)** Intensive study of selected topics in criminology and/or public sociology.

**CRM/SOC 598. Internship (6)** Prerequisite: permission from instructor and successful defense of internship proposal. Supervised participation in field experience, includes written final research report. Will be graded satisfactory (S) or unsatisfactory (U).

**CRM/SOC 599. Thesis (1-6)** Prerequisite: Successful defense of thesis proposal. Intensive study of a topic selected by the student and approved by thesis committee. Will be graded satisfactory (S) or unsatisfactory (U).

**SOC 501/GRN 501. Aging and Society (3)** Study of age as a structural feature of changing societies and groups, aging as a social process, and age as dimension of stratification. May be taken for elective credit in the GLS program.

**SOC 508. Public Sociology Seminar (3)** (recommended for all graduate Public Sociology students) An overview of the roots of public sociology and current debates surrounding public sociology. Methods, theory and praxis will be examined.

**SOC 516. Globalization and Development (3)** Globalization is one of the most important features of the contemporary world, which describes a socioeconomic system of interdependence unprecedented in terms of scope and intensity. What is less clear and still under debate, however, is the nature and the consequences of globalization: Who has pushed it forward and who benefits from it? This course will review the process of globalization and critically examine the different perspectives on it. Students will better understand how globalization has influenced (and will change) our and other's life and development

**SOC 518/GRN 518. (418) Women and Aging (3)** Examines women's experiences of old age and the aging process. Specific emphasis on family, medical, and economic institutions. May be taken for elective credit in the GLS program.

**SOC 520. Political Economy of Rural Development (3)** Examination of the development and underdevelopment of rural economies. Emphasis is placed on the dynamics of socioeconomic political change and the ways in which current global political economy shapes rural experiences.

**SOC 521. Urban Sociology (3)** Examination of sociological theory and research on urban growth and its consequences on social behavior.

**SOC 524. Social Stratification (3)** Examination of social and economic inequalities based on social class and status as basic dimensions of individual life chances as well as of the structure and dynamics of societies and the world system. Reviews current state of the field in regard to academic and policy debates, theories, methods, crucial research findings, as well as comparative analyses.

**SOC 525. Racial and Ethnic Group Relations (3)** Examination of race and ethnicity in modern societies and the modern world system. Focuses on the causes and consequences of racism, discrimination, prejudice, racial conflict, and racial oppression in American society. Special emphasis will be given to the relationship between race/ethnicity and social class.

**SOC 526. Social Control and Social Change (3)** This course looks at how societal control mechanisms interact with a society's ability incorporate change. Following a review of the social control literature, the class will analyze social behavior that breaks from existing patterns and expectations, such as riots, crowds, revolution, and social movements.

**SOC 531. Self, Desocialization, No-Self (3)** Explores the social construction of self and desocialization practices through the study of sociological, postmodern, and Buddhist perspectives on self and no-self.

**SOC 543. Corporations and Consumer Culture (3)** Critically examines the social significance of popular culture with special emphasis on corporations and the commercialization of culture.

**SOC 546. Tourism and Society (3)** An examination of the role of tourism and tourists in human societies. Topics may include: history and growth of mass tourism; relations between hosts and guests; tourism and development; heritage, environmental and pilgrimage tourism; tourism ethics; typologies of tourists and tourist experiences; and the social consequences of tourism.

**SOC 547. Sociology of Education (3)** Advanced analysis of the social structures and processes both affecting and characteristic of education in modern societies. Topics include: education's role in the socialization process; the ways in which education is both a product and producer of social stratification; variability in racial experiences in education; human, social, and cultural capital; social and cultural change and their impact on education.

**SOC 550. Gender (3)** This course first explores the history of social inequality associated with gender. It will explore both micro and macro factors that perpetuate inequality as well as those factors that have reduced inequality. The course will culminate with an in-depth look at current global efforts to address gender inequality

**SOC 560. Sociological Theory (3)** Analysis of sociological theories and theoretical perspectives, with emphasis on their practical application to contemporary society.

**SOC 565. Social Psychology (3)** This course offers an overview of the current themes in contemporary Social Psychology as well as their applications. This course focuses on the social structural determinants of social behavior and social change, with an emphasis on inequality.

**SOC 567. Sociology of Health (3)** This course explores the effects of social structural inequality on health. It looks at the history of social, economic, and political factors that have affected health and well being. It covers comparative health care systems as well as current issues concerning the United State health care system.

**SOC 568. Media and Democracy (3)** Critically examines the social, cultural, and political consequences of privately-owned corporate media, and the important role of independent media, in a democratic society.

**SOC 569. Intersectionality in Media (3)** Critically examines the intersectionality of race/ethnicity, class, gender, and sexuality in popular media.

**SOC 584. Community Development (3)** Analysis of principles, theory and practice of community change and development. Examination of multiple definitions of community and the contribution of community capitals to community well-being.

**SOC 586. Sociology of Work, Occupations and the Labor Force (3)** Theories of work and occupations; the changing structure of the labor force, the relationships between work, the individual and society. Focus on the changes in the place of work in society corresponding to technological and organizational change. Specific topics may include workplace restructuring, women and minorities in the labor force, and relations between labor and management.

**SOC 587. Sociology of Organizations (3)** Analysis of organizational theory and research applied to issues in contemporary society; topics include organizational social psychology, organizational structure and process, and inter-organizational relationships.

**SOC 590. Sociology of Poverty (3)** Analysis of trends, measurement, and extent of poverty in the United States. Examination of sociological theory explaining poverty, social policy addressing policy, specifically welfare reform, and its consequences.

## MASTER OF ARTS IN ENGLISH

The Department of English offers a program of study leading to the Master of Arts degree in English. Specific goals of the program are: (1) to provide advanced research and educational opportunities in English studies; (2) to offer a broad-based graduate program that will provide students with opportunities to specialize in historical and contemporary critical approaches to literature, language and literacy, rhetoric and composition, cultural studies, pedagogy, and professional, technical, and electronic writing; and (3) to prepare students for further graduate work leading to the Ph.D.

### Admission Requirements

Applicants seeking admission to the graduate program in English are required to submit the following to the Graduate School (all six items MUST be received by the Graduate School before the application will be forwarded to the department for action):

1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. Official scores on the verbal, quantitative, and analytical writing sections of the Graduate Record Examination (no more than five years old)
4. Three recommendations by individuals in professionally relevant fields, addressing the applicant's demonstrated academic skills and potential for graduate study.
5. A ten-page analytical writing sample that includes a bibliography citing secondary sources in MLA format.
6. A statement of interest (500 words)

The minimum requirements for acceptance are the following: an acceptable score on the Graduate Record Examination, a satisfactory response to the statement of interest attached to the application form, a bachelor's degree from an accredited college or university or its equivalent in a foreign institution based on a four-year program, and a strong overall academic record with a "B" average or better in the undergraduate major. However, meeting minimal GRE scores and grade requirements does not in itself guarantee admission. Applicants who are not undergraduate English majors must have completed 12 hours of upper level English courses or have this requirement waived by the graduate coordinator.

The deadline for receiving applications is March 1 for the fall semester and November 1 for the spring semester. All interested applicants will be considered for teaching assistantships, which will be awarded on a competitive basis, ordinarily in April for the following academic year. Applicants seeking graduate assistantships are urged to complete their applications well before the deadline.

### Degree Requirements

1. The M.A. program requires a minimum of 30 semester hours of graduate study, including ENG 501, Introduction to Research Methods in English; either ENG 502, Introduction to Literary Theory, or ENG 552, Rhetoric and Culture; and ENG 599, Thesis (6 hours).
2. Students may substitute one graduate course (3 hours) from outside the department with the prior approval of the Graduate Coordinator.
3. At least 24 semester hours must be completed in residence at UNCW; a maximum of six semester hours may be transferred from another accredited institution. Grades on transfer work must be equivalent to a "B" or better.
4. A written comprehensive exam must be successfully completed.
5. The student will present and defend a thesis, acceptable to the student's thesis committee, prior to graduation. The thesis defense will be open to the public.
6. Students must complete the program within five years of the date of first registration for graduate study.

## GRADUATE PROGRAM IN ENGLISH

### Course Descriptions

**ENG 501. Introduction to Research Methods in English (3)** English majors only or consent of instructor. Analysis of the content of English studies, stressing bibliographic tools and the aims and methods of literary and writing research.

**ENG 502. Introduction to Literary Theory (3)** English majors only or consent of instructor. Analysis of the philosophical, historical, and social foundations of literary theory. Emphasis on problems of meaning, interpretation, and evaluation. Examination of relevant critical figures and schools in historical context.

**ENG 503. Theory and Practice of Teaching Composition (3)** English majors only or consent of instructor. Critical analysis of current composition theories and classroom practices; examination of teaching and learning theories related to composition courses. Required for second-semester graduate teaching assistants.

**ENG 504. (430) The Age of Chaucer (3)** A survey of works written in medieval England. Included are The Canterbury Tales, selections from Chaucer's other works, and representative works in such genres as chronicle, biography, epic, romance, dream vision, and drama.

**ENG 505. (431) The Age of Elizabeth (3)** English literature in the sixteenth and early seventeenth centuries. Works studied include poetry by Spenser and Shakespeare, plays by Marlowe and Jonson, and prose by More and Sidney.

**ENG 506. (432) The Age of Milton (3)** Emphasis on the works of Milton. Also includes works by Donne, Herbert, and Bacon.

**ENG 507. Studies in Short Fiction (3)** Study of short fiction as a genre. May focus on an author, theme, period, the short story, the novella, traditions, conventions, or forms. May be repeated for credit under a different subtitle.

**ENG 508. Studies in Nonfiction (3)** Study of nonfiction prose. May focus on a form such as biography, autobiography, memoir, the journal, or various forms of essays. May be repeated for credit under a different subtitle.

**ENG 509. (490) Topics in Literature (3)** The study of a selected theme, movement, period, influence, or genre. Content varies from semester to semester. May be repeated for credit under a different subtitle.

**ENG 510. Theory and Practice of Cultural Studies (3)** In various forms, this course will introduce graduate students to the history, theory, vocabulary, and critical strategies commonly employed in cultural studies. While critical and topical emphasis may vary from section to section, this course will present students with the notion of culture in broad social, aesthetic, ethical, and political contexts so as to prepare them for more advanced research in cultural studies.

**ENG 511. Studies in the Novel (3)** Study of the novel as a genre. May focus on the history of the novel, major authors, a theme, a period, narrative technique, or form. May be repeated for credit under a different subtitle.

**ENG 512. Topics in Cinema (3)** Study of a selected filmmaker, genre, period, style, or theme in film. May be repeated for credit under a different subtitle.

**ENG 513. Studies in Poetry (3)** Study of poetry as a genre. May focus on an author, theme, period, poetic form, or traditions and conventions. May be repeated for credit under a different subtitle.

**ENG 514. Studies in Drama (3)** Study of drama as a genre. May focus on an author, theme, period, dramatic form, or traditions and conventions. May be repeated for credit under a different subtitle.

**ENG 525. Topics in Linguistics (3)** In-depth study of a topic in linguistics. May be repeated for credit under a different subtitle.

**ENG 526. English Grammar for ESL Teaching (3)** Study and analysis of the structure and components of the English language. Prepares students to design, implement, and assess strategies and methods of teaching grammar to English language learners.

**ENG 551. Topics in Professional Writing (3)** Advanced instruction in writing for a particular field, including but not limited to business, science, and technology. May be repeated for credit under a different subtitle.

**ENG 552. Rhetoric and Culture (3)** Theoretical analysis of significant developments in the history of rhetoric from Plato and Aristotle to Kenneth Burke and Helene Cixous with emphasis on the influence of rhetoric on written composition.

**ENG 553. Topics in Rhetoric and Literacy (3)** Study of a topic in rhetoric or literacy. Topics vary; typical offerings might include the work of one or more theorists or theories, current issues in the field of literacy studies, or other themes. May be repeated for credit under a different subtitle.

**ENG 554. Theories and Practices of Critical Literacy (3)** Analysis of theories related to literacy development and instruction, and critique of related teaching and learning practices with special emphasis on historical, cultural, and ideological issues.

**ENG 555. Language, Meaning and Culture (3)** Analysis of theories of language, communication, and culture with emphasis on application of these theories to oral and written texts in a variety of contexts.

**ENG 556. Qualitative Research in English Studies (3)** Practical and theoretical introduction to qualitative research with a focus on research design and ethical issues.

**ENG 557. Theory and Practice of Technical Communication (3)** Introduction to principles and practices of technical communication and applications in community, business, and industry; attention to writing with technologies as well as theories of writing, editing, and usability.

**ENG 559. Pedagogies of Reading and Writing (3)** Introduction to current topics in literacy pedagogy and their influences (e.g., feminism, literary theories, electronic technologies, social construction), with emphasis on theory in practice.

**ENG 560. Topics in British Literature (3)** Study of a period, theme, movement, major author, or genre in British literature. May be repeated for credit under a different subtitle.

**ENG 561. Topics in American Literature (3)** Study of a period, theme, movement, major author, or genre in American literature. May be repeated for credit under a different subtitle.

**ENG 563. Topics in World Literature (3)** Study of major traditions in world literature. Topics may include European literature or Third World literature. May be repeated for credit under a different subtitle.

**ENG 564. Studies in Children's/Young Adult Literature (3)** Study of texts within the fields of adolescent and children's literature. May include classic or modern literature for younger audiences, fairy tales, picture books, theory and criticism of children's literature, or children's film. May be repeated for credit under a different subtitle.

**ENG 572. Topics in Literary Criticism (3)** Study of a topic in literary criticism. Topics vary; typical offerings could include the work of one or more theorists or theories of literary criticism. May be repeated for credit under a different subtitle.

**ENG 580. Studies in Literature (3)** Intensive examination of a special area of literary study. May be repeated for credit under a different subtitle.

**ENG 591. Directed Independent Study (3)** Students must secure permission of the graduate coordinator. May be taken once. May not be taken concurrently with ENG 599 or used for thesis research.

**ENG 596. Internship in Applied English Studies (UNCW Campus) (1-3)** Prerequisite: Nine hours of graduate course credit for MA in English and permission of instructor. Supervised professional experience on the UNCW campus in an area of English studies, includes but not limited to editing, publishing, writing, and writing instruction. Specific goals and assignments to be set and evaluated by instructor.

**ENG 598. Internship in Applied English Studies (1-3)** Prerequisite: Nine hours of graduate course credit for M.A. in English and permission of instructor. Supervised professional experience in an area of English studies including but not limited to editing, publishing, writing, writing instruction, and film production. Specific goals and assignments to be set and evaluated by instructor.

**ENG 599. Thesis (1-6)**

## MASTER OF ARTS IN ENVIRONMENTAL STUDIES

The Master of Arts in Environmental Studies is an interdisciplinary, graduate degree designed for professionals, practitioners, citizens and students who wish to strengthen their knowledge of the environment. The multidisciplinary nature of this program provides the student with a unique balance of the scientific background necessary for sound environmental decision-making within the context of educational, political, sociological, economic and legal frameworks. This approach is intended to produce future and current environmental professionals with the broad perspective necessary to be effective leaders in the field.

### Admission Requirements

To ensure consistency in course sequencing, the majority of admissions will occur in the fall semester of each academic year. The deadline for submitting applications for fall admission is April 15. Applications will be accepted and considered until the class is filled. In the event of openings for spring admission, the deadline is October 15.

Applicants seeking admission to the Master of Arts in Environmental Studies program are required to submit the following to the Graduate School:

1. An application for graduate admission
2. Official transcripts of all prior university or college work (undergraduate and graduate)
3. Official scores on the Graduate Record Exam (GRE) less than five years old
4. Three recommendations by individuals in professionally relevant fields
5. A personal statement describing educational and professional experiences, reasons for pursuing graduate study in environmental studies and career goals

Applicants seeking admission to the program must meet the following requirements:

1. Successful completion of a bachelor's degree from an accredited university or college, or its equivalent (due to the diversity of areas of emphasis within the proposed program, it is not required that the successful applicant possess a degree in Environmental Studies)
2. Strong academic performance in an undergraduate curriculum indicated by a minimum of a GPA of 3.0 or higher, or its equivalent
3. Indication of graduate academic potential reflected by satisfactory performance on the Graduate Record Examination
4. Indication of graduate academic potential reflected by three letters of recommendation from individuals in professionally relevant fields
5. Concurrency of personal goals with the focus of the environmental studies graduate curriculum

Individuals who fall below one of these criteria may be admitted if other factors indicate potential for success. Individuals with identified deficiencies may be accepted provisionally with specified plans and goals for the remediation of these deficiencies. Such remediation may include a requirement of additional hours beyond those normally required for the degree.

### Degree Requirements

The program requires the satisfactory completion of 33 credit hours of approved graduate level courses consisting of the following: 15 credit hours of core classes designed to provide a foundation in environmental studies; 3 credit hours of practicum designed to link theory with practice; 15 credit hours in an approved concentration.

### Core Requirements (15 credit hours)

All students are required to complete the following classes:

- |         |   |
|---------|---|
| EVS 501 | Introduction to Environmental Problems and Policy (3) |
| EVS 515 | Field Methods in Environmental Studies (3)            |
| EVS 518 | Research Methods in Environmental Studies (3)         |
| EVS 595 | Seminar/Final Project (3)                             |

One course from:

- |         |  |
|---------|--|
| BIO 534 | Advanced Topics in Ecology (3)                     |
| ENG 557 | Theory and Practice of Technical Communication (3) |
| EVS 505 | Advanced Environmental Studies (3)                 |
| EVS 564 | Natural Resource Policy and Administration (3)     |
| EVS 570 | Advanced Environmental Law and Policy (3)          |
| GLS 533 | The Environmental Crisis (3)                       |
| HST 533 | Seminar: U.S. Environmental History (3)            |
| PLS 543 | Environmental Policy Analysis (3)                  |
| PLS 544 | Resource Economics (3)                             |

**Practicum (3 credit hours)**

The practicum is an advanced field placement and related experience in a non-profit, governmental or private sector organization. Practica allow the student to work with professionals in environmentally-related occupations and gain valuable on-the-job experience. This provides extended opportunities for fieldwork, research or creative projects and helps the student to bridge related theory with practical applications. Students are required to complete a minimum of 3 credit hours of practicum.

EVS 597 Practicum in Environmental Studies (1-6)

**Concentrations (15 credit hours)**

All students are also required to pursue a concentrated area of study in Environmental Education and Interpretation, Coastal Management, or Environmental Management. Students can also elect to plan their own curriculum in the Individualized Study concentration. Students electing to pursue the Individualized Study concentration should consult with the Environmental Studies graduate coordinator. A maximum of 6 total credit hours from any combination of EVS 591 and/or EVS 598 may be applied toward the degree.

**Coastal Management**

All students pursuing a concentration in Coastal Management must complete the following:

EVS 520 Foundations of Coastal Management (3)  
12 credit hours of electives approved by the EVS graduate program advisor

**Environmental Education and Interpretation**

All students pursuing a concentration in Environmental Education and Interpretation must complete the following:

EVS 525 Foundations of Environmental Education and Interpretation (3)  
12 credit hours of electives approved by the EVS graduate program advisor

**Environmental Management**

All students pursuing a concentration in Environmental Management must complete the following:

EVS 540 Foundations of Environmental Management (3)  
12 credit hours of electives approved by the EVS graduate program advisor

**Individualized Study**

All students pursuing an Individualized Study concentration must complete the following:

15 credit hours of electives approved by the EVS graduate program advisor

**POST-BACCALAUREATE CERTIFICATE PROGRAM IN ENVIRONMENTAL STUDIES**

The Department of Environmental Studies offers a broad-based, multidisciplinary post-baccalaureate program in environmental studies for professionals, practitioners, citizens and students who wish to strengthen their knowledge of the environment. The program is designed to provide critical and practical skills to analyze, assess and propose solutions to environmental issues. Students may participate in the environmental studies certificate program while also enrolled in a master's degree program in a specific discipline. The objective of the certificate program is to provide students with policy and planning information that may help them gain employment or advance their current careers.

**Admission Requirements**

Applicants seeking admission to the environmental studies certificate program must hold a bachelor's degree from an accredited college or university in this country or its equivalent in a foreign institution based on a four-year program and have a strong overall academic record with a "B" average or better in the basic courses prerequisite to environmental studies. Applicants are required to submit the following to the Graduate School.

1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. An essay on the applicant's goals in pursuing the certificate
4. Three recommendations by individuals in professionally relevant fields

**Certificate Requirements**

The program requires 18 hours. Students complete a team-taught core course: Introduction to Environmental Problems and Policy (3 credits) and a capstone course involving a Final Project (3 credits). Twelve hours from a list of approved electives complete the certificate program. No more than nine hours may be from the same department except Environmental Studies. A maximum of 6 total credit hours from any combination of EVS 591, EVS 597, and/or EVS 598 may be applied toward the certificate.

**Required Courses**

EVS 501	Introduction to Environmental Problems and Policy	(3)
EVS 595	Seminar/Final Project	(3)

**Approved electives**

BIO 534	Advanced Ecology and Laboratory	(4)
BIO 558	Biology of Recreational and Commercial Fishes	(3)
BIO 560	Estuarine Biology	(4)
BIO 561	Barrier Island Ecology	(3)
BIO 562	Wetlands in the United States and Their Management	(3)
BIO 563	Coral Reef Biology	(4)
BIO 568	River Ecology	(3)
CHM 574	Aquatic Chemistry	(3)
CHM 575	Chemical Oceanography	(3)
CHM 576	Chemical and Physical Analysis of Seawater	(3)
CHM 578	Aquatic Toxicology	(3)
CHM 579	Role of the Oceans in Human Health	(3)
CSC 572	Scientific Visualization	(3)
ENG 551	Topics in Professional Writing	(3)
ENG 557	Theory and Practice of Technical Communication	(3)
EVS 570	Advanced Environmental Law and Policy	(3)
EVS 578	Hazardous Waste Operations and Emergency Response (HazWOpER)	(3)
EVS 580	Research Diving	(3)
EVS 591	Directed Independent Study	(1-3)
EVS 592	Special Topics in Environmental Studies	(1-3)
EVS 597	Practicum in Environmental Studies	(1-3)
EVS 598	Internship	(1-3)
GLY 520	Global Climate Change	(3)
GLY 558	Introduction to Coastal Management	(4)
GGY 522	Remote Sensing in Environmental Analysis	(3)
GGY 524	Geographic Information Systems	(3)
HST 533	Seminar: U.S. Environmental History	(3)
GLS 532	Conservation and Culture	(3)
GLS 533	The Environmental Crisis	(3)
PHY 575	Physical Oceanography	(3)
PLS 520	Seminar in Coastal Processes and Problems	(3)
PLS 521	Legal Foundations of Coastal and Environmental Management	(3)
PLS 522	Field Seminar in Coastal Management	(3)
PLS 524	Managing Coastal Hazards	(3)
PLS 525	Managing Coastal Ecosystems	(3)
PLS 528	Resource Economics	(3)
PLS 540	Environmental Policy and Management	(3)
PLS 592	Special Topics in Public Administration	(3)
MSA 566	Environmental Law	(1-3)
MSC 526	Cruise or Field Sampling	(1-3)
MSC 579	Role of Oceans in Human Health	(3)
SCI 501	Concepts in Natural Science I, II	(1,3)
SCI 577	Environmental Chemistry and Laboratory	(4)
STT 505	Data Analysis	(3)
STT 520	Biostatistical Analysis	(3)
	Other courses as approved by the graduate coordinator	

**GRADUATE PROGRAM IN ENVIRONMENTAL STUDIES**  
**Course Descriptions**

**EVS 501. Introduction to Environmental Problems and Policy (3)** Introduction to critical and practical skills necessary to identify, analyze, and assess environmental problems. Includes study and review of environmental policy issues.

**EVS 505. Advanced Environmental Studies (3)** Interdisciplinary examination into the scope of environmental studies. Emphasis will be placed upon integrated analysis of environmental principles through investigation of current environmental issues.

**EVS 515. Field Methods in Environmental Studies (3)** A survey of methods, techniques and instrumentation used in environmental fieldwork. Focus is upon data gathering, analysis, interpretation and application to environmental management. Required field trips.

**EVS 518. Research Methods in Environmental Studies (3)** Introduction to select research processes used in environmental studies, throughout project development, research implementation, data analysis and reporting. Scientific ethics, quality assurance and investigator safety will be emphasized. Students will gain experience in both quantitative and qualitative approaches to research.

**EVS 520. Foundations of Coastal Management (3)** Prerequisite: EVS 505 or Permission of Instructor. Interdisciplinary investigation into the relationship between human society and coastal ecosystems, focusing upon the political, economic, socio-cultural and scientific challenges facing coastal managers. Core principles of coastal management will be used to develop potential solutions to contemporary coastal issues. Required field trips.

**EVS 525. Foundations of Environmental Education and Interpretation (3)** Principles, philosophies and methodologies of environmental education and interpretation are examined within both formal and informal educational settings. Extensive field-based opportunities will allow students to not only develop foundational knowledge but to gain practical experience in developing, implementing and evaluating environmental education and interpretation programming. Required field trips.

**EVS 530. (EVS 430) Tropical Environmental Ecology (3)** An in-depth introduction to the issues, debates, and conservation of tropical environments, especially focusing on current ecological, social, and economic environmental problems. Emphasis will be on the Neotropics, located in Central and South America and the Caribbean, though all tropical locations, Asian, African, Australian, and Polynesian will be covered.

**EVS 540. Foundations of Environmental Management (3)** Prerequisite: EVS 505 or permission of Instructor. Policies and processes related to environmental management are examined within the context of the political, economic, socio-cultural and scientific challenges facing environmental managers today. Both regulatory and non-regulatory approaches to environmental management are examined within the public and private sectors. Required field trips.

**EVS 560. (EVS 460) Using Advanced Technologies to Teach About the Environment (3)** This course will focus on the use of new technologies to teach about the environment; current issues and trends in environmental education; the development, implementation, and assessment of new technologies; and effective instructional strategies to teach key environmental principles and concepts.

**EVS 564. Natural Resource Policy (3)** Existing natural resource laws, institutions and programs are summarized in their historical context and in relation to current natural resource issues. Philosophical underpinnings of policy positions are examined and discussed to facilitate greater understanding of implicit goals. Class presents models of policy creation, implementation, and reform, with specific examples focusing on natural resource management.

**EVS 570. Advanced Environmental Law and Policy (3)** Prerequisite: EVS 501. Analysis of issues related to the regulatory process, including research methods and current topics in environmental law and policy. Methodology and impacts of current and proposed policies will also be reviewed.

**EVS 572. (EVS 472) Coastal Protected Areas Management (3)** Prerequisite: EVS 520 or permission of Instructor. Study of resource management focused on protected areas maintained by government agencies and by private non-profit organizations. Emphasis will be on natural area significance, site selection, management plan development, policy formulation, protection options, use conflicts and public relations.

**EVS 577. Environmental Site Assessment (3)** Study of ASTM guidelines for environmental site assessment. Emphasis on historic overview, regulations, and preparation methods associated with environmental site assessment. Lecture and field trips.

**EVS 578. (478) Hazardous Waste Operations and Emergency Response (HazWOpER) (3)** Study of the physical and chemical hazards present at hazardous waste sites and those encountered during environmental clean-ups, as well as OSHA regulations pertaining to those sites. The class will meet the 40 CFR 1910.120 requirements for 40+ hours of training and OSHA certification will be issued.

**EVS 580. Research Diving (3)** Prerequisite: SCUBA certification, medical exam and permission of Instructor. Training in advanced diving, research diving enriched air nitrox, rescue diving and oxygen administration techniques. Students will receive AAUS (American Academy of Underwater Science) Completion of Training Certificate.

**EVS 591. Directed Independent Study (1-3)** See graduate coordinator for details and permission.

**EVS 592. Special Topics in Environmental Studies (1-3)** Topics of special interest in environmental studies not covered by current courses. May be repeated for credit.

**EVS 595. Seminar/Final Project (3)** Field, laboratory or literature-based research on selected topics in environmental planning and policy developed, implemented and presented in collaboration with selected faculty, staff and/or environmental professionals.

**EVS 597. Practicum in Environmental Studies (1-6)** Prerequisite: Permission of Instructor. Advanced field placement and experience in non-profit, governmental or private sector. Provides extended opportunities for fieldwork, research or creative projects and includes related theory to practical applications.

**EVS 598. Internship (1-3)** Supervised experience with credentialed professional in environmental studies.

## MASTER OF SCIENCE IN GEOLOGY

The Department of Geography and Geology offers a program of study leading to the Master of Science degree in geology. The program provides advanced research and educational opportunities in the geological sciences and prepares students for solving contemporary problems in geology. Our faculty are prepared to supervise work in the following areas: marine and coastal geology; oceanography; geochemistry and geophysics; stratigraphy and basin analysis; environmental and resource geology; hydrogeology; geomorphology; mineralogy and petrology; paleontology and paleoecology; and structural geology and tectonics. The program includes a thesis and non-thesis option, both of which provide a foundation for employment in the environmental fields, mineral and energy industries, and government agencies. In addition the thesis option prepares students for advanced study leading to the doctoral degree, while the non-thesis option (OP1) provides a foundation for employment as an entry-level professional geologist in environmental fields and firms, mineral and energy industries, and government agencies. Completion of the non-thesis option assists students toward professional licensure.

### Admission Requirements

Applicants seeking admission to the graduate program in geology are required to submit the following to the Graduate School:

1. An application for graduate admission; including the statement of interest and degree option form.
2. Official transcripts of all college work (undergraduate and graduate)
3. Official scores on the Graduate Record Examination (verbal, quantitative, analytical writing)
4. Three recommendations by individuals in professionally relevant fields. Students seeking admission to the graduate program in geology must hold a bachelor's degree from an accredited college or university in this country or its equivalent in a foreign institution based on a four-year program, have a strong overall academic record with a "B" average on the basic courses prerequisite to geology, and satisfactory scores on the Graduate Record Examination. We accept students to our program who hold bachelor's degrees in any of the biological, earth, physical, or mathematical sciences. All students must have completed two semesters each of chemistry, physics, and calculus, and have working knowledge of physical and historical geology. Upon entrance into the master's program, the student's advisor may identify deficiencies and recommend remedies. All deficiencies must be removed before a student is accepted as a candidate for the degree.

### Degree Requirements

#### Option 1 - Thesis

1. The program requires at least 30 semester hours of graduate credit, with a maximum of six credit hours for the thesis, three credit hours for seminars, and six credit hours of directed independent study (GLY 591). Each student must complete GLY 501 and GLY 502.
2. A maximum of six semester hours of graduate credit may be transferred from another accredited institution. Grades earned on transfer work must be equivalent to "B" or better. A minimum of 24 semester hours of graduate courses must be completed at UNCW including both course work and thesis. At least 18 semester hours must be completed in geology.
3. Each student must successfully complete a comprehensive oral examination and an approved thesis prospectus prior to registering for thesis hours.
4. Each student must complete an approved course of study including an approved thesis prospectus within five years of the date of first registration for graduate study.
5. Each student must present and defend a thesis, based on original research, acceptable to the committee, prior to graduation. The thesis defense is open to the public.

#### Option 2 - Non-Thesis

1. The program requires at least 36 semester hours of graduate credit, with a maximum of three credits for internship or final project, three credit hours for seminars, and six credit hours of directed studies.
2. A maximum of six semester hours of graduate credit may be transferred from another accredited institution. Grades earned on transfer work must be equivalent to "B" or better. A minimum of 30 semester hours of graduate courses must be completed at UNCW including course work, internship, and final project. At least 27 semester hours must be completed in the department.
3. Each student must complete the following core curriculum: GLY 501, GLY 502, GLY 525, GLY 526, GLY 565, GGY 522, and GLY 597 or GLY 598.
4. Each student will take a written comprehensive examination after the successful completion of all required core coursework with the exception of GLY 597 and GLY 598.
5. Each student must complete either GLY 597 or GLY 598, and prepare and present a scholarly paper/report acceptable to the committee, prior to graduation. A final seminar is required.

## GRADUATE PROGRAM IN GEOLOGY

### Course Descriptions

**GLY 501. Research Methods in Geology (2)** Scientific proposal preparation, experimental design, scientific ethics, library use, safety, project management, data analysis, quality assurance and computer applications. One lecture and two laboratory hours per week.

**GLY 502. Technical Communication in Geology (2)** Scientific manuscript preparation and communication techniques: writing techniques, manuscript format, abstracts, oral and poster presentations. One lecture and two laboratory hours per week.

**GLY 503. Advanced Field Methods (4)** A survey of geotechnical field techniques applicable to structural geology, geophysics, hydrology, map interpretation, rock, soil and sediment description, engineering and economic geology. Two lecture and four laboratory hours per week. Required field trips.

**GLY 510. Sedimentary Environments (3)** Prerequisite: Petrology, stratigraphy, field camp. Survey of ancient sedimentary environments with an evaluation of the criteria used in their recognition in the rock record. Specific ancient sedimentary sequences are examined and compared to their modern counterparts. Three lecture hours per week. Field trips.

**GLY 511. Clastic Petrology (3)** Prerequisite: Optical mineralogy. Classification and description of sandstones and mudrocks and evaluation of their diagenesis. Application of principles to economic deposits. Laboratory exercises concentrate on microscopic and X-ray techniques of analysis. Two lecture and three laboratory hours per week. Field trips.

**GLY 512. Carbonate Petrology (3)** Prerequisite: Optical mineralogy or permission of instructor. An examination of sedimentary, igneous, and metamorphic carbonate rocks with emphasis on observation, description and interpretation. Plus an in depth look into how carbonate petrology is applied in the exploration and exploitation of natural resources including hydrocarbons, base metals, precious metals and industrial minerals. Two lecture and three laboratory hours per week.

**GLY 513. Advanced Igneous Petrology (3)** Prerequisites: Optical mineralogy, petrology, structural geology, or permission of instructor. Principles and methodology underlying the physical and chemical processes affecting the genesis of igneous rocks in various tectonic settings. Topics include the application of thermodynamics, chemographic relationships, and phase equilibrium to the differentiation of magmas and the crystallization of igneous minerals, and geothermobarometric and geochronologic investigation of igneous rocks. Two lecture hours and three laboratory hours per week. Field trip(s).

**GLY 514. Advanced Metamorphic Petrology (3)** Prerequisites: Optical mineralogy, petrology, structural geology, or permission of instructor. Principles and methodology underlying the study of metamorphism and metamorphic facies in varying rock compositions, and petrotectonic settings. Topics include metamorphic phase equilibria and diagrams, geothermobarometry and P-T—time paths, metamorphic mineral crystallization and recrystallization, and textural relationships in metamorphic rocks having variable protoliths and histories. Two lecture and three laboratory hours per week. Field trip(s).

**GLY 515. Methods of Sedimentology (3)** Prerequisite: Petrology. A survey of the parameters of sedimentation. Emphasis on the processes involved in the formation of sedimentary rocks, including their origin, transport, deposition and lithification of rock-forming minerals. Techniques of physical and chemical analyses of sediments are stressed. One lecture and six laboratory hours per week. Field trips.

**GLY 520. Global Climate Change (3)** Prerequisites: General chemistry, college physics, and calculus with analytic geometry. Analysis of natural and anthropogenic global climate change. Historical and geological records of climate including sediment, tree ring, and ice core analysis. Physics and chemistry of climate including Earth's energy balance, global carbon cycle, climate modeling, atmospheric composition and dynamics. Three lecture hours per week.

**GLY 525. Engineering Geology (3)** Prerequisite: Consent of instructor. Properties, uses, and engineering significance of solid earth materials and water. Principles of stress and strain and related material responses. Methods, techniques, and instrumentation of engineering geologic investigations. Three lecture hours per week.

**GLY 526. Geohydrology (4)** Prerequisites: Two semesters of college calculus and petrology, or permission of instructor. Geology of ground waters and related aspects of surface waters. Methods of groundwater resource evaluation, protection, exploitation, and contaminant remediation. Three lecture and three laboratory hours per week.

**GLY 531. Micropaleontology (3)** Prerequisite: Invertebrate paleontology or consent of instructor. Paleobiology and geological history of microorganisms, emphasizing the classification and systematics of major microfossil groups. Two lecture and three laboratory hours per week. Field trips.

**GLY 533. Paleocology (3)** Prerequisite: Invertebrate paleontology or consent of instructor. Principles of ecological faunal analysis as primarily applied to the marine fossil record. Emphasizes the integration of form and function, taphonomy, and community development through time, and sedimentology/stratigraphy as a synthetic approach to paleoenvironmental, paleobiological and evolutionary analyses. Applications to biostratigraphy are considered. Three lecture hours per week. Field trips.

**GLY 535. Stratigraphic Paleontology (3)** Prerequisite: Invertebrate paleontology, stratigraphy, or consent of instructor. Analysis of the historical, geological and biological basis of biostratigraphy emphasizing the application of biostratigraphic principles and techniques in the development of high-resolution relative time scales. Three lecture hours per week. Field trips.

**GLY 540. Regional Geology of North America (3)** Prerequisites: Structural geology, stratigraphy. Survey of the rocks, structures, natural resources, and tectonic histories of different regions of North America, such as the Precambrian shield, Appalachians, and Cordillera. Syntheses of theories of orogenesis. Three lecture hours per week.

**GLY 541. Advanced Structural Geology (3)** Prerequisite: Structural geology. Origin and analysis of earth structures. Solution of advanced structural problems involving stress, strain, rheology, folding, and fracturing of rocks. Rock mechanics, finite strain, and fabric analysis of deformed rocks. Review of techniques. Directed field or lab problems and examples from literature. Two lecture and two laboratory hours per week.

**GLY 543 (443). Tectonics (3)** Prerequisites: Structural geology, stratigraphy, petrology. Examination of current ideas and their development as global tectonic theories. Plate tectonic controls on orogeny, orogenic belts, magmatism, sedimentation, and metallogeny of major geologic regions of North America and other areas of the world. Three lecture hours per week.

**GLY 550. Marine Geology (3)** Prerequisite: Consent of instructor. Topography, sediments, structure and geologic history of the marine and estuarine environment. Three lecture hours per week. Field trip(s).

**GLY 551. Seafloor Mapping (3)** Prerequisite: Permission of instructor. A survey of different methods used to map the seafloor including satellite altimetry, multibeam and sidescan sonar swathmapping. Operation of instruments, survey strategies and techniques to process and interpret data will be explored. Two lecture and three laboratory hours per week. Shipboard field trip.

**GLY 552. Coastal Sedimentary Environments (4)** Prerequisite: Consent of instructor. Sedimentary processes and environments of the world's coastal systems. Emphasis on river deltas, estuaries, bays, salt marshes, barrier islands and associated inlets. Ice-bound as well as rocky coastlines also are examined. Three lecture and three laboratory hours per week. Field trip.

**GLY 555. Coastal Sediment Dynamics (3)** Prerequisites: One year of calculus or physics or consent of the instructor. Theory and application of models used to quantify sediment movement and deposition in the coastal environment. Three lecture hours per week. Field trips.

**GLY 558. Introduction to Coastal Management (4)** Interdisciplinary study of human impacts on coastal environments and organisms. Topics include the physical and biotic setting of worldwide coastal regions, principles of coastal management, and analysis of potential solutions to coastal problems. Three lecture and three laboratory hours each week.

**GLY 560. Integrative Stratigraphy (3)** Prerequisites: Invertebrate paleontology, stratigraphy, petrology. Stratigraphic analysis of the geologic history of North America and parts of other continents. Emphasis on interpreting lithologic assemblages and stratigraphic relations in terms of modern tectonic-depositional models. Two lecture and three laboratory hours per week.

**GLY 561. Coastal Plains Geology (3)** Prerequisites: Invertebrate paleontology, stratigraphy, petrology. Origin and development of Gulf and Atlantic Coastal Plains with emphasis on stratigraphy, structure, geomorphology and tectonic history. Three lecture hours per week. Field trip(s).

**GLY 565. (465) Introduction to Geophysics (3)** Prerequisite: Consent of instructor. Integrated application of geophysical methods to solve environmental and geologic problems. Includes discussion of reflection/refraction seismology, ground penetrating radar and gravity. Two lecture and three laboratory hours each week.

**GLY 572. Introduction to Geochemistry (3)** Prerequisites: Two semesters of college calculus; mineralogy or inorganic chemistry; or permission of instructor. Investigation of the abundance and distribution of chemical elements in the Earth's crust, mantle, atmosphere, hydrosphere, and biosphere. Introduction to thermodynamics, phase and mineral equilibrium, stable and radiogenic isotopes, and geochronology. Emphasizes the application of geochemical processes to solving geologic and environment problems, with selected examples from field and laboratory studies. Three lecture hours per week.

**GLY 573. Isotope Geochemistry (3)** Prerequisite: Two semester of college calculus and two semesters of college chemistry. Introduction to the use of radio and stable isotopes for studying environmental processes; radio decay and the applications of radioisotopes at daily to earth-history timescales; isotopic fractionation, and applications of stable isotopes in modern and paleo-environments. Three lecture hours per week.

**GLY 591. Directed Independent Study (1–3)**

**GLY 592. Topics in Geology (1–4)** Prerequisite: Consent of instructor. Advanced special topics in geology through lectures, seminars, and laboratory or field experience.

**GLY 595. Seminar (1)** Prerequisite: Consent of instructor. Research and discussion of selected topics in earth sciences. Oral presentation at a departmental seminar and attendance at selected university seminars required.

**GLY 597. Final Project in Geology (3)** Permission of instructor. Focused study of a research topic in the practical application of geology. Topics are selected by the student with appropriate faculty and graduate coordinator approval. Students work with a faculty committee. Written analysis and oral presentation of the project is required.

**GLY 598. Internship (3)** Prerequisite: Permission of instructor. Participation in field experience with an organization involved in the practice of geology. Students work with a licensed professional geologist focusing on the linkage between course work and practical application. Students complete a final report based on their activities. Final presentation required.

**GLY 599. Thesis (1–6)**

### Course Descriptions for Geography

**GGY 522. (422) Remote Sensing in Environmental Analysis (3)** Prerequisite: Consent of instructor. Use and interpretation of aerial photography and other remote sensing techniques in environmental analysis. The course emphasizes problem identification, digital image analysis, and interpretation of images through laboratory exercises. Three lecture and two laboratory hours each week.

**GGY 524. (424) Geographic Information Systems (3)** Prerequisite: GGY 328 or consent of instructor. Advanced theory and application of the use of Geographic Information Systems (GIS), spatial data collection, data structures, data management and relational databases, spatial analysis, and display of geographic information in a computer-based environment. Lectures, demonstrations, and lab exercises. Two lecture and three laboratory hours each week.

**GGY 526. Environmental Geographic Information Systems (3)** Prerequisites: GGY 328 or consent of instructor. Overview of environmental applications of GIS and completion of a GIS project; planning a GIS project; development and analysis of the data, and oral and written presentation of the results. Research topics may include atmospheric studies, oceanographic, hydrology, ecology, biology, resource management, and hazard risk assessments. Two lecture and three laboratory hours each week.

**GGY 552. Historical/Cultural Geography (3)** Prerequisite: Permission of instructor. Study of the evolution of natural environments and cultural landscapes; spatial diffusion; settlement patterns; and the material culture including vernacular architecture. Focus will be on North America, with consideration of European antecedents. A seminar type course in which students are responsible for an intensive research project. Three lecture hours per week.

**GGY 578. (478) Historic Preservation Planning (3)** An applied research course which deals with the procedures employed by federal, state and local agencies in locating, recording, restoring and preserving American architectural resources and material cultural heritage. Subjects examined include survey, documentation, and planning; historic districts; adaptive use; funding; legislation; and organizational roles. Three lecture hours per week.

**GGY 591. Directed Independent Study (1-3)**

**GGY 592. Special Topics in Geography (1-4)** Prerequisite: Consent of instructor. Advanced special topics in geography through lecture, seminar, and laboratory or field experience. More than one topic may be taken for credit.

## MASTER OF SCIENCE IN APPLIED GERONTOLOGY

The Master of Science in applied gerontology will train professionals to face the challenges of a nationally and regionally aging population. The program is built on theoretical foundations, supported by the practical application of service-learning, integrating teaching, research and service. Graduates will use their knowledge of applied gerontology to affect the quality of life for older adults in retirement communities, health care settings, and other public and private organizations which provide services and goods needed by an aging population. Through course work that is both multidisciplinary and interdisciplinary, the MS in applied gerontology will prepare graduates to be aware of all aspects of aging. Graduates will be able to realistically consider careers involving work with older adults through synthesizing coursework in biology, health sciences, psychology, and sociology of aging, as well as hands-on experience with older populations. This is a 36 credit hours program and prospective students will include biology, psychology, sociology, social work and nursing majors, as well as allied health professionals. The primary goal of the program is to improve the quality of life for the region's older adults through the workforce. UNCW is a regional university, with a mission statement that indicates a dedication to serve the population of southeastern North Carolina.

### Admission Requirements

Applicants seeking admission to the Master of Science in applied gerontology must hold a bachelor's degree from an accredited college or university in this country or its equivalent in a foreign institution based on a four-year program and have a strong overall academic record with a "B" average or better in the following basic courses prerequisite to gerontology:

- Introductory coursework in gerontology or aging. Students who have had no academic coursework in gerontology may note that an introductory course is available at UNCW that can be taken prior to enrolling in any graduate gerontology course.
- Introduction to Sociology
- Introduction to Psychology
- Statistics and Research Methodology
- Principals of Biology

Individuals with identified deficiencies may be accepted provisionally provide there is a reasonable plan for remediation of deficiencies.

Documents to be submitted to the Graduate School for admission are:

1. An application for graduation admission
2. Official transcripts of all college work (undergraduate and graduate)
3. An essay on the applicant's goals in pursuing the master's
4. Three recommendations by individuals in professionally relevant fields
5. Official scores on the Graduate Record Exam (GRE)

In addition to the above, students must interview with the Gerontology Student Admissions Committee regarding vocational or personal development goals.

### Degree Requirements

The program requires 36 semester hours of coursework.

Core requirements: The following 21 semester hours of core courses are required:

GRN 501	Aging and Society	(3)
GRN 503	Applied Research in Gerontology	(3)
GRN 523	Physiology of Human Aging	(3)
GRN 540	Current Issues in Gerontology	(3)
GRN 590	Practicum in Gerontology	(6)
PSY 524	Psychology of Aging	(3)

Each student must also complete nine (9) credit hours of approved electives and six (6) credit hours of Final Project GRN 598.

The Gerontology Practicum requires 250 clock hours and will be under the combined supervision of UNCW faculty and persons in business, government or non-profit organizations who deliver products or services to older adults. The goals of the practicum are twofold: 1) to gain hands-on experience in the field under the supervision of practicing gerontologists, and 2) to gather research data that may be incorporated in and shape each student's applied final master's project.

The final master's degree project will be designed in consultation with a committee that includes two members of the gerontology program faculty and one professional drawn from the world of business, government, and/or non-profit organizations that serve older adult clients. In many instances, the professional will have been involved with the student's practicum experience.

## POST-BACCALAUREATE CERTIFICATE PROGRAM IN GERONTOLOGY

The Graduate School offers a multidisciplinary post-baccalaureate program in gerontology. The goal of the program is to provide a program of instruction and educational experiences in the field of gerontology at the graduate level, i.e., an academic foundation for anyone who plans to work with aging adults. As those who serve the elderly must be aware of all aspects of aging, course work will address the biology, sociology, and psychology of aging with electives in literature, life transitions, economics, psychosocial adjustment to retirement, ethics, communication, and others. Courses are taught by faculty in a number of different disciplines such as: departments of Biology, Sociology, Psychology, English, Philosophy and Religion, Social Work, and Communications within the College of Arts and Sciences. Additional courses will be taught by faculty from the schools of Nursing, Business, and Education. This provides students with the opportunity to gain a broad perspective of the concepts and issues in aging as well as to profit from the diverse backgrounds of fellow students. The gerontology certificate may be earned in concert with other UNCW graduate degree programs such as the MALS, MSW, MPA, or PSY.

### Admission Requirements

Applicants seeking admission to the graduate certificate program must hold a bachelor's degree from an accredited college or university in this country or its equivalent in a foreign institution based on a four-year program and have a strong overall academic record with a "B" average or better in the basic courses prerequisite to gerontology. Applicants are required to submit the following to the Graduate School:

1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. An essay on the applicant's goals in pursuing the certificate
4. Three recommendations by individuals in professionally relevant fields

In addition to the above, students must satisfy the following additional requirements:

1. An interview with the Gerontology Student Admissions Committee
2. Complete the following undergraduate prerequisites, including an introductory course in gerontology or aging. (For students who have not had such a course, it is available at UNCW and should be taken prior to enrolling in any graduate level gerontology courses.)
  - a. Introduction to Sociology
  - b. Introduction to Psychology
  - c. Statistics and Research Methodology
  - d. Principles of Biology

### Certificate Requirements and Teaching Methods

The program requires 15 semester hours. Graduate courses in gerontology focus on the seminar method of teaching and learning. Students will be required to do literature searches to gain information from journals as well as some textbooks, and bring their findings to class to share with other students and the faculty. Although some courses will involve lecture presentations, students must be self-directed in their studies and seek information appropriately. Service-learning opportunities are also part of the curriculum. Each student will complete a gerontology practicum.

#### Required courses (15 semester hours)

a)	GRN/SOC 501	Aging and Society	(3)
	GRN 523	Physiology of Human Aging	(3)
	GRN 540	Current Issues in Gerontology	(3)
	GRN 590	Practicum in Gerontology	(3)
b)	PSY 524	Psychology of Aging	(3)

### Course Descriptions

**GRN 501. (SOC 501) Aging and Society (3)** Study of age as a structural feature of changing societies and groups, aging as a social process, and age as dimension of stratification. May be taken for elective credit in the MALS program.

**GRN 503. Investigative Inquiry in Gerontology (3)** Prerequisite: Graduate standing. Principles of quantitative and qualitative methods used in gerontological research and inquiry. May be taken for elective credit in the MALS program.

**GRN 518. (SOC 518) Women and Aging (3)** Examines women's experience of old age and the aging process. Specific emphasis on family, medical, and economic institutions. May be taken for elective credit in the MALS program.

**GRN 523. Physiology of Human Aging (3)** An overview of the aging process with special emphasis on anatomical and physiological changes that occur with human aging. Current theories as to the mechanisms of aging are considered. Premature aging diseases and age-related diseases are discussed. Student presentations required. Three lecture hours each week. May be taken for elective credit in the MALS program.

**GRN 524. Literature of Aging (3)** Contemporary fiction and nonfiction by Philip Roth, Doris Lessing, May Sarton, and others, selected for their depictions of older protagonists and explorations of opportunities and challenges of later life, are analyzed. Literary theories, literary criticism, and gerontological scholarship contribute to the interpretations. The texts' ways of challenging our culture's ageism are emphasized. Students give oral reports, write essays, and participate in an e-mail project with a senior group in the community. May be taken for elective credit in the MALS program.

**GRN 526. Psychosocial Adjustment to Retirement and Later Life (3)** A seminar focusing on the psychosocial aspects of retirement and post-employment years. Theories of aging and scientific inquiry applied to retirement, and their significant others. May be taken for elective credit in the MALS program.

**GRN 540. Current Issues in Gerontology (3)** Study of current issues and topics in the field of aging from an interdisciplinary and global perspective.

**GRN 544. Midlife Transitions for Women (3)** The interdisciplinary study of social construction of menopause and midlife as embodying a culture's image of aging for women.

**GRN 546. Health Care Access for the Elderly (3)** An introduction to the US health care system with an emphasis on issues related to the elderly. Problems of access to health care for the aging population, their families, and communities. May be taken for elective credit in the MALS program.

**GRN 590. Practicum in Gerontology (3)** Prerequisites: GRN/SOC 501, PSY 524, GRN 523. A field experience designed to demonstrate knowledge and skills related to geriatric or gerontological practice. Must be repeated to earn 6 credit hours by Master of Science students. May be taken for elective credit in the MALS program.

**GRN 591. Directed Individual Research in Gerontology (3)** Prerequisites: Three hours of graduate work with content in human aging. May be repeated for credit with consent of program director. May be taken for elective credit in the MALS program.

**GRN 595. Special Topic Seminar in Gerontology (3)** Discussion of special topic related to gerontology. May be repeated for a maximum of 12 hours credit. May be taken for elective credit in the MALS program.

**GRN 598. Final Project in Gerontology (6)** Prerequisites: GRN/SOC 501, GRN 503, PSY 524, GRN 523, GRN 540, GRN 590 and permission of the GRN coordinator. Focused study of issue in gerontology of importance to professionals from the worlds of business, government, not-profit agencies and/or research. Synthesizes interdisciplinary curriculum with student's interest and practical experience.

**PAR 505. Bioethics and Aging (3)** Examination of the principles and problems in the application of ethical theory to medical research and practice with emphasis on the special ethical problems of providing health care services to the aging population and involving elderly patients in medical research. May be taken for elective credit in the MALS program.

**PSY 516. Adult Development and Life Transitions (3)** This course explores the major normative and nonnormative changes which take place during adulthood. Operating from a lifespan perspective, topics include an examination of how adults initiate, understand, cope with and resolve life transitions (i.e., parenting, loss, illness, career change, relationship change, etc.) May be taken for elective credit in the MALS program.

**PSY 524. The Psychology of Aging (3)** Prerequisite: Course in aging or gerontology or permission of instructor. Advanced topics on the effects of aging on a variety of psychological processes including attention, memory, complex cognition, personality, mental health, and social support. May be taken for elective credit in the MALS program.

## MASTER OF ARTS IN HISTORY

The Department of History offers a program of study leading to the Master of Arts degree in history. Specific goals of the program are: (1) to provide advanced research and educational opportunities in the study of history; (2) to prepare historians by training them in the latest research techniques, providing them with a knowledge of the most current research on historical problems; and (3) to direct students in historical research using historical documents and archives.

### Admission Requirements

1. Applicants are required to submit the following to the Graduate School:
2. An application for graduate admission.
3. Official transcripts of all college work (undergraduate and graduate).
4. Official scores on the Graduate Record Examination.
5. Three recommendations by individuals in professionally relevant fields; at least two must be from academics.
6. Research paper or suitable equivalent. Applications for non-degree status will not be accepted.
7. Fill out history questionnaire.

The minimum requirements for admission to the graduate program in history include: satisfactory scores on the Graduate Record Examination (verbal, quantitative and analytical), a bachelor's degree from an accredited college or university or its equivalent in a foreign institution based on a four-year program, and an overall academic record with a "B" average or better in the basic courses prerequisite to the area of proposed graduate study. The deadline for fall admission is May 1 (March 1 for full consideration for financial aid and assistantships); for spring admission the deadline is November 1.

### Degree Requirements

1. The program requires a minimum of 30 semester hours of graduate study, 24 of which must be in history. A maximum of six semester hours of credit may be transferred from another accredited institution. Grades on transfer work must be equivalent to "B" or better. At least 24 hours of graduate study must be completed in residence.
2. All students must complete a minimum of 24 semester hours of course work. Students in U.S., European and global must complete, in addition, six hours of thesis; public history students three hours of internship and three hours of thesis. At least 18 hours of course work must be completed in courses open only to graduate students; for public history students at least 15 hours. Cross listed courses will have additional requirements and different grading for graduate students
3. Students must complete HST 500, 12 hours in the area of concentration and nine hours of electives. Six hours beyond HST 500 must be in graduate-level seminars. One graduate seminar must be in the area of concentration. No more than six hours of HST 591 may be counted toward the degree.
4. Each student must successfully complete a written comprehensive examination that will be administered no earlier than during the final semester of enrollment in course work, and no later than the semester following the completion of course work.
5. Each student in the U.S., European and Global areas will complete six hours of Thesis (HST 599), and defend the thesis to the satisfaction of the thesis committee, prior to graduation. Each student in public history will complete three hours of Internship in Public History (HST 598) and three hours (or more) of Thesis (HST 599) and present either a disciplinary content thesis, an original contribution to the literature of public history, or a work of interpretive scholarship acceptable to the thesis committee prior to graduation.
6. Students must pass a competency examination demonstrating satisfactory reading knowledge of a foreign language.
7. The program shall be completed within five years of the date of first registration for graduate study.

## GRADUATE PROGRAM IN HISTORY

### Course Descriptions

**HST 500 is a prerequisite or co-requisite for all classes.**

**HST 500. Historiography and Methodology (3)** Introduction to problems of historical research through examination of major historical works and current techniques of research, evaluation of sources, development of bibliography, and quantitative historical methods including the role of the computer in historical research. This course is open only to graduate students.

**HST 508. (ANT 412). Historical Archaeology (3)** Prerequisite for history graduate students: HST 500. Historical archaeology is the integrated study of recent peoples using archaeological and historical research methods. This class will focus on the peoples of North America, roughly from the 15<sup>th</sup> through the 19<sup>th</sup> centuries. May not be applied toward fulfillment of graduate seminar requirement.

**HST 518. (440) Seminar: U.S. Social History (3)** Intensive study of selected topics in U.S. social history. Examples of topics: African-Americans, immigrants, social movements, education, work and leisure, sexuality. May be repeated under a different subtitle. May not be applied toward fulfillment of graduate seminar requirement.

**HST 520. U.S. Colloquium (3)** Readings and discussion of bibliographies, interpretations, and research trends on a theme offered in American history. This course is open only to graduate students. May be repeated one time for credit.

**HST 522. U.S. Seminar (3)** Research in the bibliography of specialized topics and use of primary sources to write an original research paper on an aspect of American history. This course is open only to graduate students. May be repeated under a different subtitle.

**HST 524. Major Interpretations in American History (3)** A historiographic survey of influential interpretations of American history as they relate to specific topics and periods. This course is open only to graduate students.

**HST 525. (442) Seminar: U.S. Economic History (3)** Intensive study of significant themes or events in U.S. economic history from the colonial period to the present. Examples of topics: economy of Colonial America, 19th-century labor movements, economy of the Ante-bellum South, agricultural history. May be repeated under a different subtitle. May not be applied toward fulfillment of graduate seminar requirement.

**HST 526. (444) Seminar: U.S. Political History (3)** Intensive study of selected facets of political theory, behavior, movements, and institutions, and how political power has been used to influence the development of society. Examples of topics: New Deal politics, third-party movements, U.S. Constitution. May be repeated under a different subtitle. May not be applied toward fulfillment of graduate seminar requirement.

**HST 527. (446) Seminar: U.S. Diplomatic History (3)** Intensive examination of fundamental principles, assumptions, and objectives in the conduct of U.S. foreign policy, and of how Americans have viewed their place in the international order at various moments in their history. Examples of topics: the diplomacy of World War II, the Cold War, arms control and disarmament. May be repeated under a different subtitle. May not be applied toward fulfillment of graduate seminar requirement.

**HST 528. (448) Seminar: U.S. National Security History (3)** Intensive examination of major themes and events in the evolution of U.S. national security and defense policy, the uses of national power, and the role of military affairs from the colonial period to the present. Examples of topics: the Vietnam War, the use of air power, U.S. imperialism. May be repeated under a different subtitle. May not be applied toward fulfillment of graduate seminar requirement.

**HST 529. (450) Seminar: U.S. Intellectual History (3)** Intensive examination of the role of ideas in American history. Examples of topics: radicalism, the Enlightenment, myth in American history, and ideas about democracy, ethnicity, equality, religion, gender. May be repeated under a different subtitle. May not be applied toward fulfillment of graduate seminar requirement.

**HST 531. (454) Seminar: U.S. Regional History (3)** Intensive examination of the economic, social, and political history of a specific region of the United States. May be repeated under a different subtitle. May not be applied toward fulfillment of graduate seminar requirement.

**HST 533. (456) Seminar: U.S. Environmental History (3)** Prerequisite: HST 201-202, 290 or consent of the instructor. Intensive study of selected topics in U.S. environmental history. Examples of topics: nature and culture, the cult of the wilderness, conservation and preservation, resources and regions, gender and nature, the environmental movement. May be repeated under a different subtitle. May not be applied toward fulfillment of graduate seminar requirement.

**HST 540. European Colloquium (3)** Readings and discussion of major research trends and schools of interpretation in selected themes in European history. This course is open only to graduate students. May be repeated one time for credit.

**HST 542. European Seminar (3)** Research in the bibliography of specialized topics and use of primary sources to write an original research paper on an aspect of European history. This course is open only to graduate students. May be repeated under a different subtitle.

**HST 548. (408) Seminar: Medieval Europe (3)** Research-oriented exploration of major themes and issues in history of Medieval Europe (500-1500). May not be applied toward fulfillment of graduate seminar requirement. May be repeated under a different subtitle.

**HST 552. (412) Seminar: Renaissance and Reformation Europe (3)** Research-oriented exploration of major themes and issues in the history of Renaissance and Reformation Europe (1350-1618). May not be applied toward fulfillment of graduate seminar requirement. May be repeated under a different subtitle.

**HST 554. (414) Seminar: Early Modern Europe (3)** Research-oriented exploration of major themes and issues in the history of Early Modern Europe (1618-1789). May not be applied toward fulfillment of graduate seminar requirement. May be repeated under a different subtitle.

**HST 556. (416) Seminar: Nineteenth-Century Europe (3)** Research-oriented exploration of major themes and issues in the history of Europe from the French Revolution to the First World War. May not be applied toward fulfillment of graduate seminar requirement. May be repeated under a different subtitle.

**HST 558. (418) Seminar: Twentieth-Century Europe (3)** Research-oriented exploration of major themes and issues in the history of Europe since 1914. May not be applied toward fulfillment of graduate seminar requirement. May be repeated under a different subtitle.

**HST 560. Global Colloquium (3)** Readings and discussion of bibliographies, interpretations, and research trends on a theme or period in global history. This course is open only to graduate students. May be repeated one time for credit.

**HST 562. Global Seminar (3)** Research in the bibliography of specialized topics and use of primary sources to write an original research paper on an aspect of global history. This course is open only to graduate students. May be repeated under a different subtitle.

**HST 564. Modernization and Revolution in the Non-Western World (3)** Examination of industrialization, imperialism, nationalism, and other forces that have revolutionized traditional society in the non-Western world. This course is open only to graduate students.

**HST 570. Public History: Theory and Practice (3)** Prerequisite or co-requisite HST 500. A survey of the theoretical literature concerning the field of public history combined with a class project based upon primary research designated to introduce students to career opportunities and the collaborative process inherent in public history.

**HST 573. Public History Seminar (3)** Research in the bibliography of specialized topics and use of primary sources to write an original research paper or complete an original interpretative project on an aspect of public history. This course is open only to graduate students. May be repeated under a different subtitle.

**HST 577. (477) Historic Preservation in the U.S. (3)** This applied research class provides an overview of the history, theory, and practices of historic preservation. It addresses the history of the built American environment and how scholars analyze buildings and landscapes as historical evidence. Students visit historic structures and conduct both fieldwork and archival research.

**HST 578. (478) Interpreting US Material Culture (3)** Prerequisite or co-requisite: HST 500. Intensive examination of theory, practice, and historiography of using material culture as sources for the study of American life. Culminates in a research paper constructing a historical argument based on an artifact.

**HST 580. (480) Topics in Public History (3)** Intensive study of selected themes in public history. Examples of topics: history and memory, interpretation of landscape, interpretation of material culture, and business history. May be repeated under a different subtitle.

**HST 581. (481) Topics in African History (3)** Intensive study of a selected theme in African history. Examples of topics: slavery, the slave trade and its abolition, pre-colonial Africa, colonial and post-colonial Africa, oral history in Africa. May be repeated under a different subtitle.

**HST 583. (483) Topics in Middle Eastern History (3)** Intensive study of a selected theme in Middle Eastern history. Examples of topics: early Islamic conquests, the Ottoman Empire, the Arab-Israeli conflict. May be repeated under a different subtitle.

**HST 585. (485) Topics in Latin American History (3)** Intensive study of a selected theme in Latin American history. Examples of topics: pre-Columbian civilizations. May be repeated under a different subtitle.

**HST 586. (496) Topics in the History of Science and Technology (3)** Intensive study of a selected theme in the History of Science and Technology. Examples of topics include: "Positivism," "The Scientific Revolution," "Occult Studies and the Renaissance," "The Industrial Revolution." May be repeated under a different subtitle.

**HST 587. (487) Topics in Global History (3)** Intensive study of a selected theme in global history. Examples of topics: colonialism, imperialism, industrialization, slavery, revolutionary movements. May be repeated under a different subtitle.

**HST 590. Comparative Historical Studies (3)** Comparison of developments in different eras or places in order to determine unique or common historical themes. This course is open only to graduate students. May be repeated one time for credit

**HST 591. Directed Independent Study (1-6)** May take up to six credit hours; see the graduate history coordinator for details.

**HST 593. Problems in History (3)** Investigation of selected problems in European, American, and non-Western History through discussions, development of bibliographies, or research papers. This course is open only to graduate students. May be repeated one time for credit.

**HST 595. (495) Special Topics in History (3)** Research-oriented exploration of a special topic not regularly covered in other courses. May not be applied toward fulfillment of graduate seminar requirement.

**HST 596. Seminar: Topics in History (3)** Advanced research on specialized topics using, where possible, primary sources. This course is open only to graduate students. May be repeated one time for credit.

**HST 597. (497) Topics in Asian History (3)** Intensive study of selected themes and events in Asian history not regularly covered in other courses. Examples of topics include: Chinese Revolutions, Meiji Japan, Gandhian thought, and nationalist movements. May be repeated under a different subtitle.

**HST 598. Internship in Public History (3)** Prerequisite: HST 570 and permission of the instructor. Supervised experience with credentialed professional in public history or technical field, combined with directed reading in literature of that field. Final product must meet accepted standards of historical scholarship and professional practice as defined by faculty and supervising professional.

**HST 599. Thesis (1-6)** This course is open only to graduate students.

## GRADUATE LIBERAL STUDIES PROGRAM

### Master of Arts in Liberal Studies

The College of Arts and Sciences, School of Nursing, Watson School of Education and the Cameron School of Business offer a program that leads to the Master of Arts in liberal studies (MALS). This program is for students who wish to design a personalized curriculum of interdisciplinary graduate study. Students can select from a variety of courses that will expand their interests and deepen their understanding of themselves, their society and the environment. This program reflects an older, cultural tradition of scholarship, which liberally educates the whole person, providing breadth and depth, but not necessarily applying directly to a career or vocation. The major objective of this program is to offer highly motivated, intellectually prepared student an opportunity to explore the questions and issues that are important to them and society.

#### Admission Requirements

Applicants seeking admission to the Master of Arts in liberal studies are required to submit the following to the Graduate School:

1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. Three recommendations that address the student's chances of success in a Master of Arts in liberal studies program
4. A writing sample in the form of an essay explaining how the graduate liberal arts degree can assist the candidate in meeting his or her personal goals.

Students seeking admission to the Master of Arts in liberal studies program must hold a bachelor's degree with an academic record of a "B" average or better in the undergraduate major from an accredited college or university in this country or its equivalent in a foreign institution based on a four-year program.

At the discretion of the GLS Program Director, the admission procedure may also include an interview with a graduate coordinator of the program and a representative from the advisory committee.

#### Degree Requirements

1. The program requires a minimum of 30 semester hours of graduate study.
2. No more than six hours may be taken from cross-listed 400/500 courses.
3. Students must maintain a "B" average in all graduate courses taken.
4. No more than six semester hours of credit may be transferred from another accredited institution. Grades earned on transfer work must be equivalent to "B" or better. A minimum of 24 hours of graduate study must be completed in residence.
5. A final project (GLS 598) of three credit hours is required of all students who have successfully completed 27 hours of course work. The project provides students with the opportunity to explore particular areas of study in greater depth under the close supervision of a faculty member. The final project may take the form of scholarly research or a creative work, but in all cases a written analysis is required to meet the degree requirements. Students will present their project to a forum of faculty and students.
6. Faculty are expected to complete all course work within five years after enrollment. Students wishing to withdraw from the MALS program prior to the completion of thirty hours who have completed a minimum of fifteen hours in residence towards the MALS degree may be eligible for a certificate of study in liberal studies. Students must consult the director to apply for the certificate.

#### Required courses: Two courses are required for all students:

GLS 502 Contemporary Issues in Liberal Studies	(3)
GLS 598 Final Project in Liberal Studies	(3)

MALS courses fall into six broad thematic areas: 1) social concerns and social systems; 2) environment, science, and society, 3) arts, literature, and society; 4) gerontology; and 5) Hispanic studies.

#### Elective Courses

At least 15 of the 24 elective hours must be graduate level liberal studies (GLS) courses, with the exception of students pursuing a concentration in gerontology or Hispanic studies. Students pursuing a concentration in gerontology must take GRN 501, Aging in Society; GRN 523, Biology of Aging; PSY 524, Psychology of Aging; and six elective hours of gerontology. Students pursuing a concentration in Hispanic Studies are expected to be fluent in Spanish and must take a total of 18 hours distributed as follows: nine hours of core courses in Hispanic studies and nine hours of electives in Hispanic studies (as described in the Post-baccalaureate certificate program in Hispanic studies section of this catalogue).

## POST-MASTER'S CERTIFICATE IN LIBERAL STUDIES

The Post-Master's Certificate in Liberal Studies (PMCLS) requires the completion of 20 hours in graduate liberal studies beyond the master's level. The certificate is intended to accommodate the needs and interests of those students who wish to continue their course work in graduate liberal studies beyond the master's level. The orientation of the post-master's certificate, like that of the MALS degree, is not professional or vocational in nature, but is geared toward life-long learners who are primarily motivated by a love of learning and who wish to further expand their interests and deepen their understanding of themselves, the environment, and social and cultural concerns related to the local, regional, national, and global communities.

### Admission Requirements

Applicants who have received a Master of Arts in liberal studies degree from the University of North Carolina Wilmington need only complete an application for graduate admission.

Applicants who have received a Master of Arts in liberal studies degree from other institutions must submit the following documents to the Graduate School Office:

1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)

Students seeking admission to the Post-Master's Certificate in Liberal Studies Program must hold a masters degree in Liberal Studies with an academic record of 3.5 GPA or better from an accredited college or university in this country or its equivalent in a foreign institution.

The admission procedure also includes an interview with the graduate coordinator of the program and a representative from the advisory committee.

### Certificate Requirements

1. The certificate requires 20 semester hours in graduate liberal studies beyond the Master's level, which will include 18 elective hours and the successful completion of a qualifying exit exam, GLS 599, which carries two hours credit.
2. GLS 591(Directed Individual Study in Graduate Liberal Studies) courses may not be applied toward satisfaction of certificate requirements.
3. Cross-listed 400/500 courses may not be applied toward satisfaction of certificate requirements.
4. Three hours of graduate liberal studies credit may be transferred from another accredited graduate liberal studies program.
5. Students must maintain an overall 3.5 average in all graduate courses applied toward satisfaction of certificate requirements.
6. Certificate requirements must be completed within four years after enrollment.

### Required Qualifying Exit Exam

GLS 599: Qualifying Exit Exam in the Post-Master's Certificate Program in liberal studies is intended to provide certificate candidates with the opportunity

1. to present a retrospective assessment of the meaning and significance of their experience as graduate liberal studies students on both the master's and post-master's levels and
2. to examine the value and relevance of graduate liberal studies in the contemporary world, particularly in regard to those agendas of inter-disciplinary, cultural diversity, internationalism, and active citizenship that inform the graduate liberal studies program at UNCW.

## GRADUATE LIBERAL STUDIES PROGRAM Course Descriptions

**GLS 502. Contemporary Issues in Liberal Studies (3)** A review of critical issues in liberal studies that may be influencing disciplinary methodology, discourse or research techniques. Emphasis on forms of oral and written communication, and research methods.

**GLS 510. Religion and Sex (3)** Through an examination of the major world religions' views on sex, procreation, marriage, abstinence, masturbation, incest, and sexual orientation as expressed in their scriptures, exegesis, and practice, this course explores the close connections between various conceptions of the sacred and their impact on this biological activity.

**GLS 511. The Social Organization of Cruelty (3)** This course examines the origins and organization of cruelty (slavery, torture, genocide, child abuse, the treatment of "inmates" in nursing homes and mental hospitals) with the aims of 1) developing a general theory of cruelty and 2) better understanding cruelty as an ongoing social achievement.

**GLS 513. Transitions from Communism (3)** An interdisciplinary approach to the problems of transition in four regions: Eastern Europe, Russia, Central Asia, and China. After an examination of the historical, geographical, and cultural foundations of current issues, the course focuses on the prospects for democracy and civil society.

**GLS 514. Post-Modern Childhood (3)** Interdisciplinary exploration of contemporary childhood. Popular media, scholarly sources, and a variety of qualitative methods will be used to analyze the social worlds of children and the social construction of childhood in postmodern and increasingly global consumer culture.

**GLS 517. Affirmative Action and Social Justice (3)** Introduction, through discussion, debate and dialogue, to the philosophy of racial justice. Topics include equality and the Constitution, slavery and segregation, the philosophy of civil rights, affirmative action and theories of social justice, and racial healing.

**GLS 519. Poverty, Social Policy, and the American Welfare State (3)** A seminar considering America's struggle against poverty and related social problems. Examination of social policy and programs, the changing character of poverty over the past century, the influence of reform movements, and the future of the U.S. social welfare system.

**GLS 520. Atheism and Unbelief (3)** Examines the beliefs and assumptions of atheists by exploring an atheist's response to common theistic arguments, by surveying the historical and philosophical traditions of atheism, and by considering how atheists explain all those things deists need gods for, with special reference to the theories of Freud, Durkheim, Marx, Skinner, Harris, and Sperber.

**GLS 521. Media and Society (3)** Examines the relationship between media, culture, and society, with a special emphasis on interdisciplinary perspectives. Focuses on the roles the mass media play in the production, reception, and representation of the news, race, class, gender and sexuality in contemporary society.

**GLS 522. Shamanism (3)** Cross-cultural study of shamanism. Topics include importance of cultural context, altered states of consciousness, balance with nature, and use of plants. Exploration of the shaman as healer, medium, and conduit of spiritual knowledge. Shamanism as a personal journey.

**GLS 523. Popular Culture (3)** Cross-cultural and semiotic analysis of popular forms of everyday life (food, fashion, fads, entertainment trends, television, movies, music, myths, stereotypes, and icons of mass-mediated consumer culture), with a special emphasis upon thinking and writing critically about popular culture by examining tacit assumptions about how the world works and our place in it as well as the role language plays in shaping reality.

**GLS 524. The Contemporary American Workplace (3)** Examines the contemporary American workplace from a number of disciplinary perspectives—economic, sociological, psychological, historical, philosophical, and literary—and considers such concerns as work and identity, ethics and the workplace, gender and ethnic discrimination, work as reality and myth, work and leisure, the workaholic syndrome, job satisfaction, management and labor relations, and education and the marketplace.

**GLS 526. Persuasion in American Life (3)** How American society is influenced by the advertising and public relations industries and the newspaper editorial page.

**GLS 527. Historical Geography of American Race Relations (3)** This seminar explores the historical geography of American race relations from 1619 to the present through readings, discussions, and oral and written presentations of research.

**GLS 528. Cultural Images of America in the 60s (3)** An interdisciplinary examination of the United States in the 1960s, with a focus upon such major political, social, and cultural developments as the anti-Vietnam war movement, the free speech movement, the civil rights movement, the women's movement, the sexual revolution, the Black Arts movement and the environmental movement as well as the evolution of a distinctive counterculture.

**GLS 529. Cultural Images of America in the 50s (3)** An interdisciplinary examination of the United States in the 1950s from a variety of socio-cultural perspectives, with a focus upon such topics as fashion, automotive design, food and kitchen technology, roadside architecture, suburban development, consumerism, the nuclear family, the evolution of a distinctive youth culture, segregation, the "Red" scare, popular fads, and the popular media.

**GLS 530. The Shaping of America: Cultural Landscapes and the American Sense of Place (3)** Examination of the material cultural landscapes of America from geographical, historical, and aesthetic perspectives and how attachment to place has shaped the landscape. A study of the rich spatial tapestry of our nation's fields, towns, cities, architectural styles, railways, and roadscapes and how those patterns reflect five centuries of diverse ethnic and cultural evolution.

**GLS 531. Science and Pseudoscience (3)** Study of criteria for description and explanation in science and the use of those criteria to demarcate between scientific and pseudoscientific claims to knowledge. Evaluation of specific areas such as parapsychology, astrology, and alternative medicine. Consideration of psychological factors influencing people's tendency to accept unsupported beliefs.

**GLS 532. Conservation and Culture (3)** A discussion of both contemporary and historical links between conservation and human cultures, with a focus on wildlife and other natural resources. Includes topics such as the Dust Bowl, attitudes toward predators, the founding of the Hudson Bay company, Smokey the Bear, Rachel Carson and Silent Spring, and the conservation ethics of Muir, Pinchot, and Leopold.

**GLS 533. The Environmental Crisis (3)** An intensifying environmental crisis has arisen from local, national, and transborder encounters with water and air pollution, habitat destruction and species extinction, and possible global warming, all in the context of unprecedented population growth. This course is an America-centered, historically oriented examination of our environmental dilemmas and their possible solutions.

**GLS 534. Culture Wars and the Origin of Difference (3)** Intensive study of significant themes in the literature on the encounter of European peoples with the Third World. Interdisciplinary and anthropological readings focus on explanations for the origin of cultural differences, the dynamics of the colonial encounter, the contemporary clash of cultures, and multiculturalism.

**GLS 535. The Historical Geography of Food (3)** Examines the food ways of different cultural regions from prehistoric hunter/gatherers through Neolithic sedentary agriculture up to modern agri-business, including the diffusion of agricultural practices and products, famine's causes and effects, the decline of world fisheries, climatic and economic parameters of food production, and the role of foods in cultural practices and prohibitions.

**GLS. 536. America During the Great Depression (3)** An examination of the United States during the Great Depression from a variety of disciplinary perspectives, ranging from literature, photography, popular music, and popular film to sociology, geography, climatology, agronomy, politics, economics, public health, and education. Featured texts include fiction, autobiography, oral history, public history, letters, newspaper and photojournalism, and relevant historical and sociological studies.

**GLS 537. American Roadways (3)** An examination of such classic American roadways as the Mississippi River, the Appalachian Trail, Route 66, the Burlington-Northern rail system, the "underground railroad," and "The Trail of Tears" from such disciplinary perspective as cultural and transportation geography, folklore, history, literature, photography, popular music, the popular media, and sociology.

**GLS 540. Jungian Psychology (3)** The course will provide a study of basic ideas in Jungian depth psychology focusing on: the stages of life; the structure of the psyche; instinct and the unconscious; the concept of the collective unconscious; the relations between the ego and the unconscious; phenomenology of the self; marriage as a psychological relationship; psychological types; the transcendent function; analytical psychology and poetry; dream symbolism; spiritual problems; East/West differences; synchronicity; and Jung's answer to Job. This course does not satisfy the requirement for the MA in Psychology.

**GLS 541. Psychology and Religion (3)** A study of the relationship between Carl Jung's theory of the Collective Unconscious and Eastern views of higher consciousness. This course does not satisfy the requirement for the MA in Psychology.

**GLS 542. Creative Non-Fiction: Memoir and Truth-Telling (3)** An exploration of how authors compose their lives, construct an identity—and create a somewhat coherent self often against enormous personal, societal, and cultural obstacles, focusing on how memory and imagination, history and fiction, fact and invention intersect in the act of creating a self, and of engaging in a meaningful and/or complicated relationship with the past—a past that inevitably weaves itself into the present.

**GLS 544. Topics in Literature: War (3)** This class is a study of the (primarily American) literature inspired by war. The course readings will include various genres of literature—poetry, fiction, graphic novels and novels among others, and the subject matter ranges from Women in Indian Captivity Narratives and the story of Geronimo ("The Great Patriot Warrior") to the more extensively documented wars (e.g. the Revolutionary War, Civil War, WWI and WWII, the Vietnam War) America has experienced throughout its independent history.

**GLS 545. Author Focus: Stephen King (3)** Starting with his first published novel, *Carrie*, and working through novels, novellas and short stories from different time periods in his career, this course is a study of a variety of King's works, including some works which were first published under a pseudonym, Richard Bachman. In addition to using the more traditional approaches to analyze literature, we will also study King's own views on writing as discussed in his autobiographical title, *On Writing*, and work to polish our own writing skills during the course.

**GLS 546. The Sociology of Athletic Heroes (3)** This course is an in-depth study of the various qualities of the modern athletic hero. Its primary objective is to explore contemporary heroism as represented by athletes with regard to the criteria for both traditional and modern heroes. The course will include case studies of four pre-selected sports heroes and students' individual research on contemporary athletes as heroes/heroines.

**GLS 547. Homelessness in America (3)** This seminar examines all aspects of the local and national homeless population, including causes of, services for, and the temporary and chronic conditions of homelessness. Homelessness in the United States has increased dramatically in the last 30 years. Therefore, this seminar must also explore the political and economic aspects of homelessness and the proposed solutions, which include first and foremost, affordable housing and services, as many homeless people are mentally ill and/or substance abusers.

**GLS 560. Art in Social Science Perspective (3)** Art both organizes and is organized by social interaction. This course examines this dialectical relationship between art and society, focusing upon the complex networks of social relationships among artists, critics, aestheticians, patrons, and institutions that powerfully influence the ways in which art is performed, exhibited, evaluated, and supported.

**GLS 561. Theatre and Cinema (3)** Aesthetic study of theatre and film and the relations between them. Examination of key texts in each medium, emphasizing rhetorical analyses of language, mise-en-scene, performance, cinematography, editing and other properties particular to dramatic art forms. Three seminar hours and two screening hours each week.

**GLS 562. Our Cultural Heritage through Dance (3)** This course provides an opportunity to experience and examine dance forms and cultures from around the world. These experiences will provide the focus and impetus for students to make connections to their lives, to show connections to the global studies curriculum, and to encourage future independent study by individual class members.

**GLS 564. Composing a Self: Autobiography from the Margins (3)** In this course, we will read a range of contemporary autobiographies and memoirs and explore how writers compose their lives, construct an identity, and create a somewhat coherent self often against enormous, personal, societal, and cultural obstacles. We will read the autobiographical work of authors who have been socially marginalized, due to race, gender, ethnicity, mental illness, or socio-economics.

**GLS 566. Documentary Film: Moving Images (3)** The Documentary Tradition. One documentary film will be shown and discussed each week so that students will develop an awareness of how these films, both classics and current-day documentaries, were put together. Narration, interview, historical photos, and footage as well as actual filming of action, people and scenes will be analyzed to see how a documentary story is told. The student will be able to see how various video and audio segments make up a documentary and will become a more critical viewer of documentaries.

**GLS 568. Black Intellectual Tradition (3)** An interdisciplinary study of the black intellectual tradition in the humanities, social sciences, and the fine arts that spans nearly two hundred years, two continents, and most of the academic disciplines with special emphases upon African intellectual heritage, African philosophical thought forms, Afro-American philosophy of religion, black education, the black social conscience, and Blacks in literature.

**GLS 570. Black Mountain School of North Carolina (3)** Intensive study of the highly innovative and interdisciplinary Black Mountain School (1933-1956), its roots in European and American culture, and its remarkable legacy. Special emphasis upon poetry, the visual arts, and the performing arts and such leading figures as Charles Olson, Robert Duncan, Robert Motherwell, William de Kooning, John Cage, and Merce Cunningham.

**GLS 571. Main Street U.S.A. (3)** An examination of small-town America from a variety of topical and disciplinary perspectives, including art and architecture, business and commerce, cultural and transportation geography, education, folkways, and folk customs, history, kitsch, literature, photography, popular media, psychology, religion, sociology, and sport and recreation.

**GLS 591. Directed Independent Study (1-3)** Students must secure permission of the graduate coordinator. May be taken once. May not be taken concurrently with GLS 598 or used for thesis research.

**GLS 592. Special Topics in Liberal Studies (1-3)** Exploration of a special topic in liberal studies not regularly covered in other courses. May be repeatable for a maximum of 24 hours under different titles for credit.

**GLS 597. Internship in Applied Liberal Studies (1-3)** Prerequisite: Nine hours of graduate course credit for M.A. in Liberal Studies and permission of director. Supervised professional experience with specific goals and assignments to be set and evaluated by a GLS instructor.

**GLS 598. Final Project in Liberal Studies (3)** Focused study of topic or question selected by student and approved by faculty advisor and director of MALS. Synthesizes or represents the student's interdisciplinary theme or concentration. Written analysis and oral presentation of project is required.

**GLS 599. Post-Master's Certificate Qualifying Exam (2)** An extended written exam that provides post-Master's certificate candidates with a reflective opportunity to assess the quality and significance of their learning experience as graduate liberal students and to examine the value and relevance of graduate liberal studies in the contemporary world, particularly in regard to

those agendas of interdisciplinary, cultural diversity, internationalism, and active citizenship that inform the graduate liberal studies program at UNCW.

## MASTER OF SCIENCE IN MARINE SCIENCE

The Center for Marine Science in conjunction with the Graduate School oversees an interdisciplinary program of study leading to the Master of Science degree in marine science. The educational objectives of this degree program are 1) to provide a broad interdisciplinary understanding of marine science to students having strong undergraduate training in mathematics and the sciences; and 2) to develop skills that will enable these students to utilize this knowledge to solve complex marine environmental problems. These problem-solving skills will provide the foundation for future contributions by the graduates in marine-related industries, environmental management, teaching, research, and other marine-oriented careers. Students will also be prepared to undertake additional graduate study.

### Admission Requirements

Applicants seeking admission to the graduate program in marine science are required to submit the following to the Graduate School:

1. An official application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. Official scores on the Graduate Record Examination (verbal, quantitative, analytical writing)
4. Three recommendations by individuals in professionally relevant fields
5. Statement of research interests.

A bachelor's degree with a concentration in a natural science or mathematics from an accredited college or university in this country or its equivalent in a foreign institution based on a four year program is required for admission, along with a "B" average or better in the student's major. Undergraduate grades, GRE scores, recommendations and statements of research interest will be used in concert in making admission decisions.

### Degree Requirements

1. The Master of Science in marine science will require a minimum of 30 semester hours of graduate study. These credits may come from the student's major area of study as well as graduate courses offered by other departments as approved by the student's advisory committee. The student's advisory committee should include a minimum of three faculty members from at least two departments.
2. The courses most appropriate for each student will be determined by the student's advisory committee, with the expectation that a student will usually take no more than 12 credit hours from those courses cross-listed as 400/500.
3. Transfer work must be equivalent to a "B" or better, and courses must be acceptable to the student's advisory committee. A minimum of 24 semester hours of graduate study must be completed in residence.
4. The student must successfully complete a written comprehensive examination based on their core courses, and an oral exam on their research area. Students must also submit a prospectus that includes a course plan, literature review and research proposal which is acceptable to the student's advisory committee.
5. Each student must complete a thesis, based on original research, acceptable to the student's advisory committee and to the Graduate School. Each student will present a public seminar on his or her research project. The seminar will be followed by an oral defense of the thesis, conducted by the student's advisory committee.
6. The program shall be completed within five years of the date of first registration for graduate study.

### Required Courses

Core courses: Three of the following four core courses are required. A grade of B minus or better is required in three core courses. All four may be taken, and should be taken by students planning on continuing in a Ph.D. program.

BIO 564	Biological Oceanography	(3)
CHM 575	Chemical Oceanography	(3)
GLY 550	Marine Geology	(3)
PHY 575	Physical Oceanography	(3)

#### Students are also required to take

BIO, CHM OR GLY 501	Methods in Scientific Research	(2)
MSC 595	Graduate Seminar	(1)
BIO, CHM, GLY, MAT or PHY 599	Thesis	(3-6)

## MARINE POLICY CONCENTRATION

In addition to the core and other required courses, students seeking a Master of Science in marine science with a concentration in marine policy must also complete the following:

PLS 543	Environmental Policy Analysis	(3)
PLS 544	Resource Economics	(3)
	Two additional 500 level courses: BIO, CHM, GLY or PHY (with no more than three hours of 591)	(6)
	Choose one course from the following:	
GGY 524	Geographic Information Systems	(3)
GGY 526	Environmental Geographic Information Systems	(3)
PLS 500	Managing Public & Nonprofit Organizations	(3)
PLS 520	Seminar in Coastal Processes and Problems	(3)
PLS 521	Legal Foundation of Coastal and Environmental Management	(3)
PLS 522	Field Seminar in Coastal Management	(3)
PLS 525	Managing Coastal Ecosystems	(3)
PLS 540	Environmental Management	(3)

After obtaining approval from their advisory committees, students may select courses from the sciences, mathematics, statistics, and other areas as appropriate. For course descriptions, please refer to individual departmental listings.

### GRADUATE COURSES IN MARINE SCIENCE

**PHY 575. Physical Oceanography (3)** Prerequisite: Permission of instructor. An introduction to the descriptive and dynamical features of ocean circulation. Topics include: the physical properties of seawater; oceanic heat budget; dynamics of ocean currents; descriptive oceanography; waves and tides.

**MSC 526. Cruise or Field Sampling (1)** Cruise and/or field sampling not covered by other courses. Participation in the planning and sampling phases of major marine or environmental research programs.

**GLY 550. Marine Geology (3)** Prerequisite: Consent of instructor. Topography, sediments, structure and geologic history of the marine and estuarine environment. Three lecture and three laboratory hours per week. Field trips.

**BIO 564. Biological Oceanography (3)** Prerequisite: Permission of instructor. Discussion of the recent oceanographic literature concerning nutrient cycling, distribution and regulation of oceanic productivity, and advances in methodologies used to study oceanic processes and controlling factors. Three lecture hours per week.

**CHM 575. Chemical Oceanography (3)** Prerequisite: General chemistry. An oceanography course is recommended. Sources, distribution, forms of occurrence, and reactions of chemical species in seawater. Chemistry of concentrated aqueous solutions. Patterns of global ocean circulation Air-sea and sediment-seawater interactions. Estuarine processes and reactions. Human impact on the oceans.

**MSC 579. (CHM 579) Role of the Oceans in Human Health (3)** Prerequisite: CHM 212, BIO 110, or consent of instructor. Discovery, structure, and biological activity of marine bioactive compounds, chemotaxonomy, pharmaceutical leads, marine biotoxins, structure, mode of action, regulation and monitoring, the producing organisms, how (biosynthesis) and why these compounds are made. Two lectures per week.

**MSC 591. Directed Independent Study (1-3)**

**MSC 595. Graduate Seminar (1)** Discussion of research ideas and results by students and faculty. Preparation and presentation of research prospectus by student.

## MASTER OF SCIENCE IN MATHEMATICS

The Department of Mathematics and Statistics offers programs of study leading to the Master of Science degree in mathematics. The Master of Science program is flexible enough to provide several plans of study depending on the choice of recommended sequence of courses. Student interested in applied mathematics may take courses to prepare themselves for careers in business, industry, or government as well as for further study in mathematics. Applications from the sciences, industry and management are stressed in course work from the areas of classical applied mathematics, operations research, and statistics. A more traditional pure mathematics plan of study provides a strong background in basic areas of mathematics. Thus it is often the choice of those interested in secondary or community college teaching and for those who intend to pursue the Ph.D. degree in mathematics at another institution. Teachers in secondary schools who wish to obtain graduate level teacher certification should check with the graduate coordinator in the Watson School of Education to determine the current requirements for certification.

### Admission Requirements

Applications for fall admission must be completed by June 15. Applicants who have their applications complete by April 1 will be given priority, especially those applying for a teaching assistantship. A complete application consists of:

1. An application for graduate admission submitted on-line through the Graduate School website..
2. Official transcripts of all college work (undergraduate and graduate).
3. Official scores on the Graduate Record Examination (GRE) aptitude test. Scores more than five years old will not be accepted. In cases where the opportunity to take the GRE may be limited (such as in certain foreign countries) the applicant may request a waiver or modification of this requirement. Such requests will be considered by the department on their individual merit.
4. Three recommendations from individuals in professionally relevant fields.  
*Each applicant also must:*
5. Have a strong overall academic record and have passed, with a "B" or better average, the following undergraduate mathematics courses or their equivalent: a standard introductory calculus sequence including multivariate calculus, a course in linear algebra, and at least 15 additional semester hours of mathematics or statistics courses beyond the level of calculus.

Admissions decisions are based upon the examination of several factors, and where other indicators of success warrant, individuals who fall below the established criterion in one of the areas may be considered for admission. Such individuals may be required to take additional course work to remove deficiencies or required to demonstrate proficiency in certain areas.

To ensure that the mathematical prerequisites have been met, any student not enrolled in the mathematics degree program or the Master of Education in secondary education mathematics track must obtain permission from the Department of Mathematical Sciences to register for any graduate course offered by the department.

### Degree Requirements

The Master of Science degree requires a total of 30 semester hours of graduate work in mathematics and statistics. With the permission of the graduate coordinator and the chair, the coursework may include up to six hours of graduate courses from outside the department. To fulfill part of these requirements each student must select one of the following plans:

#### A. Thesis Plan

Each student must complete two semester hours of seminar (MAT 595) and four semester hours of thesis (MAT 599). Each student must present a thesis, acceptable to the advisory committee, prior to graduation. The student will report orally on the thesis to a general audience during the final semester before graduation. The thesis defense will be followed by an oral examination on the student's course work.

#### B. Non-thesis Plan

Each student must complete two semester hours of seminar (MAT 595) and a one-semester hour research project (MAT 596). The student must successfully complete a written comprehensive examination administered during the semester the student plans to graduate.

### Course Requirements

Each student must complete two required core sequences:

- |    |        |  |       |
|----|--------|--|-------|
| 1. | Either | MAT 511-512 Real Analysis I, II              | (3-3) |
|    | or     | MAT 518-519 Applied Analytical Methods I, II | (3-3) |
| 2. | Either | MAT 541-542 Modern Algebra I, II             | (3-3) |
|    | or     | MAT 535 Linear Programming, and              | (3)   |
|    |        | MAT 536 Discrete Optimization                | (3)   |

The remaining hours of course work are selected in consultation with an advisor, who will assist in selecting those courses best suited to the student's goals and interests. A candidate for the M.S. degree may petition the graduate coordinator for permission to apply up to six hours of graduate coursework from outside the department toward fulfillment of degree requirements. This petition, which requires approval of the graduate advisors, must address the relevance of this coursework to the student's academic goals and to a coherent program of study. Detailed advising guidelines supplied by the department recommend courses for students preparing for further graduate work; for careers in teaching community college of secondary school; and for careers in industry, business and government.

## **BACHELOR'S/MASTER'S DEGREE MATHEMATICS PROGRAM**

The bachelor's/master's degree program is designed to provide a student in mathematics a means to complete the requirements for both degrees in a period of five years. The key feature of the program is that a student can count up to 12 hours of graduate level courses satisfying requirements for the B.A. or B.S. towards the M.A. or M.S. in mathematics.

A. Students in the B.A. or B.S. program in mathematics who have:

1. Completed a minimum of seventy-five (75) and a maximum of ninety-eight (98) credit hours in their undergraduate programs in mathematics, including credits earned from advanced placement if they started at UNCW or are transfer students and have completed a minimum of two semesters as a full-time student at UNCW, a minimum of 24 hours.
2. Completed a minimum of nine (9) hours of 300-400 level mathematics or statistics courses.
3. A minimum accumulated grade point average (gpa) of 3.0/4.0 and a minimum grade point average (gpa) of 3.0/4.0 on all 300-400 level mathematics or statistics courses at UNCW.

Students may apply to the department chair for permission to apply up to 12 credit hours of graduate level course work during their senior year toward their future master's degree.

- B. In the first semester of his/her senior year, the student must submit the standard application for admission to the Graduate School including: an application form, application fee, transcripts, and GRE scores to the Graduate School. In addition, a graduate degree plan, signed by the prospective student, the department chair, and graduate coordinator must be submitted before the end of the senior year. Departmental permission to apply to the bachelor's/master's degree program does not guarantee admission to the Graduate School. Admission is contingent of meeting eligibility requirements at the time of entering the graduate program.
- C. The graduate degree plan for the master's degree must clearly indicate:
- Courses (maximum of 12 graduate credit hours) that will be double-counted for both bachelor's and master's degree;
  - Additional graduate courses that will be taken but not counted toward the bachelor's degree;
  - The student intends to fulfill his/her course requirements for the Master's degree no later than a year after receiving the bachelor's degree.
  - Intended graduation date for the master's degree.
- D. Upon review of the submitted materials by the Graduate School, a letter of acceptance (or denial) to the master's program, will be sent to the student and copied to the department chair and graduate coordinator. Acceptance will be provisional and contingent upon meeting specified degree requirements, including completion of the bachelor's degree.
- E. A student who is ineligible to participate or continue in, or withdraws from the bachelor's/master's program can not double count any courses for both bachelor's and master's degree.

For more details see the department chair or the graduate coordinator.

## **POST-BACCALAUREATE CERTIFICATE PROGRAM IN APPLIED STATISTICS**

The Department of Mathematics and Statistics offers a post-baccalaureate certificate in applied statistics for public administrators, business and industry professionals, students and others who perceive a need for training in the proper use of statistical methodology. The program allows for a balance between the technical and practical aspects of statistical applications, along with perspectives on reporting results to a variety of potential audiences. The overall objective of the certificate program is to give working professionals the necessary skills to ensure their data-based inferences and decisions are based on sound statistical principles. Students may participate in the applied statistics certificate program in conjunction with other UNCW graduate degree programs.

### Admission Requirements

Applicants seeking admission to the graduate certificate program must hold a bachelors degree from an accredited university or college in this country, or its equivalent from a foreign institution based on a four-year program, and have a strong overall academic record with a "B" average or better on courses prerequisite to statistical methodology. Applicants are required to submit the following to the Graduate School:

1. An application for graduate admission
2. All official transcripts (both undergraduate and graduate)
3. Three letters of recommendation describing the individual's potential to complete the program.

### Certificate Requirements

The program requires 17 credit hours. Students must complete a 5 credit hour core, which involves two capstone courses: case studies in statistical consultation (3 credits) and a student-directed research project (2 credits). Twelve hours, from an approved list of courses containing a substantial degree of statistical theory or application, must be selected to complete the program. The course options selected by the student must be formulated as a plan of study and approved by the program coordinator.

### Required courses

STT 590	Case Studies in Statistical Consulting	(3)
STT 596	Research Project	(2)

### Approved electives

STT 501	Applied Statistical Methods	(3)
STT 505	Data Analysis	(3)
STT 511	Design of Experiments and Analysis of Variance	(3)
STT 512	Applied Regression and Correlation	(3)
STT 520	Biostatistical Analysis	(3)
STT 525	Categorical Data Analysis	(3)
STT 530	Introduction to Non-parametric Statistics	(3)
STT 535	Applied Multivariate Analysis	(3)
STT 540	Linear Models and Regression Analysis	(3)
STT 565	Applied Probability	(3)
STT 566-567	Mathematical Statistics	(3)
STT 569	Stochastic Processes in Operations Research	(3)
STT 592	Topics in Statistics	(3)

In addition to the above courses, other graduate courses containing a substantial amount of statistical application or theory may also be included in the plan of study, subject to the approval of the program coordinator.

The course description for statistics courses is at the end of the M.S. in mathematics section of this catalogue.

## GRADUATE PROGRAM IN MATHEMATICS Course Descriptions

### MATHEMATICS

**MAT 511–512. (411–412) Real Analysis (3–3)** Prerequisite: Intermediate analysis or the equivalent. Advanced study of convergence, continuity, differentiation and integration in metric spaces. The real number system, basic topology, sequences and series, continuity, uniform continuity, theories of integration with an introduction to Lebesgue measure and related convergence theorems.

**MAT 513. Measure and Integration (3)** Prerequisite: MAT 512. Abstract measure theory. Lebesgue measure, integration, convergence theorems, absolute continuity, differentiation, Radon–Nikodym Theorem, product measures, Fubini's Theorem, Lebesgue spaces, convolution.

**MAT 515. (415) Introduction to Complex Variables (3)** Prerequisite: Advanced calculus or MAT 511. A first study of functions of a complex variable. Algebra of complex numbers, elementary functions with their mapping properties; analytic functions; power series; integration, Cauchy's Theorem, Laurent series and residue calculus; elementary conformal mappings and boundary value problems.

**MAT 516. Complex Analysis (3)** Prerequisite: MAT 511 and 515. Advanced study of complex-valued functions. Holomorphic and harmonic functions, Cauchy's Integral Theorem, Poisson's kernel and the Dirichlet problem, conformality, the Riemann Mapping Theorem, analytic continuation. Additional topics chosen from univalent, entire, meromorphic functions; Riemann surfaces; asymptotic methods; Mittag-Leffler, Runge and Weierstrass factorization theorems.

**MAT 518–519. (418–419) Applied Analytical Methods (3–3)** Prerequisite: Undergraduate differential equations and advanced calculus. A thorough treatment of the solution of initial and boundary value problems of partial differential equations. Topics include classification of partial differential equations, the method of characteristics, separation of variables, Fourier analysis, integral equations and integral transforms, generalized functions, Green's functions, Sturm–Liouville theory, approximations, numerical methods.

**MAT 521. (421) Number Theory (3)** Prerequisite: Permission of department. Use of algebraic techniques to study arithmetic properties of the integers and their generalizations. Primes, divisibility and unique factorization in integral domains; congruences, residues and quadratic reciprocity; diophantine equations and additional topics in algebraic number theory.

**MAT 525. (425) (CSC 525/425) Numerical Analysis (3)** Prerequisite: Undergraduate linear algebra, differential equations, and elementary numerical methods. Introduction to the theoretical foundations of numerical algorithms. Solution of linear systems by direct methods; least squares, minimax, and spline approximations; polynomial interpolation; numerical integration and differentiation; solution of nonlinear equations; initial value problems in ordinary differential equations. Error analysis. Certain algorithms are selected for programming.

**MAT 531. Linear Algebra (3)** Prerequisite: Permission of department. Theory of vector spaces, linear mappings and matrices. Determinants, eigenvalues, canonical forms, the Cayley–Hamilton Theorem, inner product spaces and positive definite matrices.

**MAT 535. (435) Linear Programming (3)** Prerequisite: Undergraduate linear algebra and computing experience. Methods and applications of optimizing a linear function subject to linear constraints. Theory of the simplex method and duality; parametric linear programs; sensitivity analysis; modeling and computer implementation.

**MAT 536. (436) Discrete Optimization (3)** Prerequisite: MAT 535. Theory and applications of discrete optimization algorithms. Transportation problems and network flow problems; integer programming; computer implementation.

**MAT 537. Nonlinear Programming (3)** Prerequisite: Advanced calculus and MAT 535. Theory and applications for constrained and unconstrained nonlinear optimization. Theory of convex sets, convex and concave functions, Kuhn–Tucker conditions, duality, algorithm convergence; computational methods including penalty and barrier functions, gradient projection, and quadratic programming.

**MAT 541. Modern Algebra I (3)** Prerequisite: Permission of department. Introduction to group theory. Binary structures including semigroups and lattices; finite groups, structure theorems, Sylow theorems and applications; group actions; free groups and presentations; structure of abelian groups.

**MAT 542. Modern Algebra II (3)** Prerequisite: MAT 541. Introduction to rings and fields. Modules, integral domains, vector spaces. Structure of polynomial rings and their relation to linear algebra. Field extensions and Galois theory.

**MAT 551. (451) Topology (3)** Prerequisite: Permission of department. A study of the basic concepts of general topology. Metric spaces, continuity, completeness, compactness, connectedness, separation axioms, product and quotient spaces; additional topics in point–set topology.

**MAT 557. (457) Differential Geometry (3)** Prerequisite: Advanced calculus. Theory of curves and surfaces in Euclidean space. Frenet formulas, curvature and torsion, arc length; first and second fundamental forms. Gaussian curvature, equations of Gauss and Codazzi, differential forms, Cartan's equations; global theorems.

**MAT 563. (463) Ordinary Differential Equations (3)** Prerequisite: Undergraduate linear algebra and differential equations. Advanced study of ordinary differential equations. Existence and uniqueness; systems of linear equations, fundamental matrices, matrix exponential; series solutions, regular singular points; plane autonomous systems, stability and perturbation theory; Sturm–Liouville theory and expansion in eigenfunctions.

**MAT 564. Applied Analytical Models (3)** Prerequisite: MAT 519. Topics in applied analysis of current interest. Topics may include tensor analysis and relativity, quantum mechanics, control theory, fluid mechanics, waves, ocean circulation, and mathematical models in biology or economics.

**MAT 565. (465) (STT 565/465) Applied Probability (3)** Prerequisite: A calculus-based statistics course. The formulation, analysis and interpretation of probabilistic models. Selected topics in probability theory. Conditioning, Markov chains, and Poisson processes. Additional topics chosen from renewal theory, queueing theory, Gaussian processes, Brownian motion, and elementary stochastic differential equations.

**MAT 569. (STT 569) Stochastic Processes in Operations Research (3)** Prerequisite: MAT/STT 565. Probabilistic models with applications in operations research. Queueing theory, birth–death processes, embedded Markov chains, finite and infinite waiting room systems, single and multi–server queues, general service distributions; Markov decision processes; reliability.

**MAT 581. (481) Introduction to Mathematical Logic (3)** Prerequisite: Permission of department. The formal study of truth and provability. Propositional calculus; predicate calculus. Gödel's completeness theorem, applications to formal number theory and incompleteness. Additional topics chosen from areas such as undecidability or non–standard analysis.

**MAT 592. Advanced Topics in Mathematics (3)** Prerequisite: Consent of instructor. Advanced topics of current interest in pure and applied mathematics not covered in existing courses. May be repeated under a different subtitle.

**MAT 595. Research Seminar (2)** Prerequisite: Consent of instructor. Designed to give the student experience in locating and learning mathematics outside the classroom setting. Use of the major mathematics journals, professional society publications and standard references including Mathematical Reviews. The nature of research in the mathematical sciences and research methodology.

**MAT 596. Research Project (1)** Corequisite: MAT 595. (Not intended for students who write a thesis in mathematics.) Under faculty supervision, each student presents a written exposition of the history, current knowledge, future directions, and bibliography of a mathematical topic.

**MAT 599. Thesis (1–4)**

## STATISTICS

**STT 500. Research Consultation (1-3)** Prerequisite: Consent of instructor. Statistical consultation on graduate thesis research provided through access to the Department of Mathematics and Statistics' Statistical Consulting Center. May be repeated for a total of three credit hours.

**STT 501. Applied Statistical Methods (3)** Prerequisite: Any elementary statistics course. A survey of statistical methods for scientists. Topics include: data description, probability, estimation and hypothesis testing, ANOVA, simple linear and multiple linear regression and contingency tables. This course does not count towards the Master's degree in mathematics. No credit granted after successful completion of STT 411, 412, 511, or 512. May be taken once for credit, open only to graduate students.

**STT 505. Data Analysis (3)** Prerequisite: Any statistics course. Introduction to exploratory data analysis. Use of stem and leaf plots, boxplots. Transformations of data, resistant lines, analysis of two–way tables, residual analysis. Comparison of robust/resistant methods with standard statistical techniques.

**STT 511. (411) Design of Experiments and Analysis of Variance (3)** Prerequisite: Any elementary statistics course. Review of elementary statistics; design of experiments including completely randomized, randomized block, factorial, split–plot, and repeated measures designs; analysis of variance; non–parametric alternative methods of analysis. Statistical software packages will be used as appropriate in problem solving.

**STT 512. (412) Applied Regression and Correlation (3)** Prerequisite: Any elementary statistics course. Review of elementary statistics; linear and multiple regression; correlation. Statistical software packages will be used as appropriate in problem solving.

**STT 520. (420) Biostatistical Analysis (3)** Prerequisite: Statistical programming and consent of instructor. Statistical methods used in epidemiologic studies and clinical trials. Topics include measures of association, logistic regression, covariates, life tables and Cox regression; statistical analysis using SAS.

**STT 525. (425) Categorical Data Analysis (3)** Prerequisite: Statistical programming and consent of instructor. Introduction to the analysis of qualitative data. Basic methods of summary and inference for two and three way contingency tables; introduction to the generalized linear model for binary and Poisson data; focus on multinomial responses (nominal and ordinal) and matched pairs data; statistical analysis using SAS.

**STT 530. (430) Introduction to Non-parametric Statistics (3)** Prerequisite: A calculus-based statistics course. Theory and methods of non-parametric statistics in the one- and two-sample problems and their comparisons with standard parametric procedures. Non-parametric tests for comparing more than two samples; tests of randomness and independence.

**STT 535. (435) Applied Multivariate Analysis (3)** Prerequisite: STT 511, 512. Matrix manipulations; multivariate normal distribution; inference for mean vector and covariance matrix; multivariate analysis of variance; principal components; canonical correlations; discriminant analysis; factor analysis; cluster analysis; statistical analysis using SAS.

**STT 540. (440) Linear Models and Regression Analysis (3)** Prerequisite: A calculus-based statistics course. Theoretical introduction to the general linear model and its application to simple linear regression and multiple regression. Estimation and hypothesis testing of model coefficients; residual analysis; analysis of covariance.

**STT 565. (465) (MAT 565/465) Applied Probability (3)** Prerequisite: A calculus-based statistics course. The formulation, analysis and interpretation of probabilistic models. Selected topics in probability theory. Conditioning, Markov chains, and Poisson processes. Additional topics chosen from renewal theory, queueing theory, Gaussian processes, Brownian motion, and elementary stochastic differential equations.

**STT 566–567. (466–467) Mathematical Statistics (3–3)** Prerequisite: A calculus-based statistics course. A rigorous introduction to mathematical statistics. Univariate and multivariate probability distributions; conditional and marginal distributions; theory of estimation and hypothesis testing; limiting distributions and the central limit theorem; sufficient statistics and the exponential class of probability density functions.

**STT 569. (MAT 569) Stochastic Processes in Operations Research (3)** Prerequisite: MAT/STT 565. Probabilistic models with applications in operations research. Queueing theory, birth–death processes, embedded Markov chains, finite and infinite waiting–room systems, single and multi–server queues, general service distributions; Markov decision processes; reliability.

**STT 590. Case Studies in Statistical Consulting (3)** Prerequisite: Consent of instructor. Review of case studies involving consulting with clients on statistical design of experiments and analysis of experimental and observational data; consulting on statistical issues with clients on campus through the departmental consulting center; presentation of oral report on consulting experience. This course does not count towards the Master's degree in mathematics.

**STT 592. Topics in Statistics (3)** Prerequisite: Consent of instructor. Topics in statistics of current interest not covered in existing courses. May be repeated under a different subtitle.

**STT 596. Research Project (2)** Prerequisite: Consent of instructor. Design of an experiment and/or survey approved by the instructor. Collection and analysis of data to be detailed in an oral and written report. This course does not count towards the Master's degree in mathematics.

### **MATHEMATICS FOR MIDDLE GRADES TEACHERS**

The following courses are open only to students enrolled in the middle grades education track of the Master of Education degree program.

**MAE 501. Axiomatic Systems (3)** Prerequisite: Permission of the Mathematical Sciences Department. Open only to graduate students in middle grades education. An introductory treatment of logic and methods of proof. Elementary set theory, relations, functions, cardinality, the real number system and topics from axiomatic systems. Emphasis on precision in the language of mathematics and rigor in proofs. Students gain experience in communicating mathematics through presentations.

**MAE 502. Introduction to Statistics in Practice (3)** Prerequisite: Permission of the Mathematical Sciences Department. Open only to graduate students in middle grades education. (Designed for students majoring in the social sciences.) Graphical and numerical methods for univariate data; bivariate data organization and measures of association; contingency table analysis; sampling distributions; estimation and hypothesis testing; introduction to linear regression and correlation.

**MAE 505. Modern College Geometry (3)** Prerequisite: Permission of the Mathematical Sciences Department. Open only to graduate students in middle grades education. Use of elementary methods in advanced study of the triangle and circle, special emphasis on solving original examples, comparison of Euclidean and non-Euclidean and projective geometries.

**MAE 506. Historical Developments of Mathematics (3)** Prerequisites: Permission of the Mathematical Sciences Department. Open only to graduate students in middle grades education. Development of mathematics from earliest systems to present century. Personalities involved with the contributions of each. A problem-study approach to give the student some training in research.

**MAE 592. Topics in Mathematics (3)** Prerequisite: Permission of the Mathematics and Statistics Department. Open only to graduate students in middle grades education. Topics in mathematics not covered in existing MAE courses. May be repeated for credit.

## MASTER OF ARTS IN PSYCHOLOGY

The Department of Psychology offers a program leading to the Master of Arts in psychology. The specific goals of the programs are to emphasize the scientific methods and principles common to all fields of psychology. Within the program there are three separate concentrations:

- 1) a general psychology concentration with a major goal to prepare students for entry into doctoral programs in applied or experimental psychology;
- 2) a substance abuse treatment psychology concentration. The purpose of this clinical concentration is to help prepare students for the North Carolina Psychological Associate Licensure Examination and the North Carolina Clinical Addictions Specialist Licensure.
- 3) an applied behavior analysis concentration. The purpose of this clinical concentration is to help prepare students for the North Carolina Psychological Associate Licensure Examination and examination for Board Certification as an Applied Behavior Analyst.

### Admission Requirements

Applicants seeking admission to the graduate program in psychology are required to submit the following to the Graduate School:

1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. Official scores on the Graduate Record Examination
4. Three recommendations from educators or others with professionally relevant information. Students who have majored in psychology or who have taken substantial coursework in psychology while majoring in another field will be considered for acceptance into the program. Students desiring admission into the graduate program in psychology must meet the following requirements: (a) a bachelor's degree from an accredited college or university or its equivalent from a foreign institution of higher education; (b) a strong academic record with an average of "B" or better in at least 21 hours of psychology courses, including statistics and a psychology research methods course; (c) satisfactory scores on the Graduate Record Examination.

Because admission decisions will be based upon careful consideration of all relevant factors, individuals who have indicators of success may be admitted even though they fall below some specified criteria. Individuals with identified deficiencies may be accepted provisionally with specified plans and goals for the remediation of those deficiencies. Such remediations may include a requirement of additional hours beyond those normally required for the degree.

Applications must be received by January 15 for admission the following fall semester. The admissions procedure may also include an invited interview with psychology department faculty. All interested applicants will be considered for graduate assistantships, which will be awarded on a competitive basis when they become available.

### Degree Requirements

1. The general concentration will require a minimum of 33 semester hours; the substance abuse treatment concentration will require a minimum of 53 hours and the applied behavior analysis concentration will require a minimum of 51 hours.
2. Courses open only to graduate students: All students will take at least 33 hours of coursework open only to graduate students.
3. Students must maintain a "B" average in all graduate courses taken. A student ineligible to continue because of poor grades, based upon special circumstances, may petition the Graduate School for reinstatement. A petition for reinstatement must be accompanied by statements of endorsement or non-endorsement from both the department chairperson and the dean of the College of Arts and Sciences. A student so reinstated will be dismissed if any additional grade below that of "B" is earned.
4. A minimum of 26 semester hours of graduate study must be completed in residence.
5. A faculty committee composed of a chairman and at least two other members of the Graduate Faculty, will be established for each student within the first two semesters in residence. One committee member may be from outside the field of concentration. This committee will oversee the student's thesis and program of study.
6. A comprehensive written examination must be successfully completed. This is usually done during the semester in which the student is enrolled in final course work.
7. The student will present and defend a thesis which is acceptable to the faculty committee prior to graduation.
8. Satisfactory completion of nine hours of Research Methods courses is required: PSY 555 (4), PSY 579 (1), PSY 580 (1), and PSY 589 or PSY 515 (3).
9. Each student must complete an approved course of study within five years of the date of the first registration for graduate study to be eligible for graduation.
10. PSY 591 may be repeated only once for credit toward the graduation requirement.

### Requirements for the Master of Arts in psychology

**Core courses:** Students in all three concentrations, general psychology, substance abuse treatment psychology and applied behavior analysis, must take the following core courses in addition to concentration requirements. Core courses specific to each concentration are noted.

**I. Research Methods (nine hours required)**

PSY 555 Psychological Research Methods I	(4)
PSY 579-580 Advanced Research Practicum	(1-1)
PSY 589 Psychological Research Methods II	(3)
or	
PSY 515 Small- <i>n</i> Research Design (required of Applied Behavior Analysis students)	(3)

**II. Academic Core courses (four of the following)**

PSY 510 Cognitive Psychology	(3)
PSY 517 Learning and Behavior Analysis (required of Applied Behavior Analysis students)	(3)
PSY 520 Developmental Psychology (required of Applied Behavior Analysis students)	(3)
PSY 556 Advanced Physiological Psychology (required of both Applied Behavior Analysis and Substance Abuse Treatment Psychology students)	(3)
PSY 565 Personality and Social Psychology	(3)

**III. PSY 599 Thesis (six hours to be taken over at least two semesters)** (6)**General psychology concentration requirements (33 semester hours):**

In addition to four of the core courses listed above, students seeking a Master of Arts in psychology under the general psychology concentration must also complete the following:

PSY 595 Topical Seminar	(3)
One elective approved by the psychology graduate coordinator	(3)

**Substance abuse treatment psychology concentration requirements (53 semester hours):**

Students in the substance abuse treatment concentration must take PSY 556 Advanced Physiological Psychology as an Academic Core course, but may select any three of the remaining four courses from that category. In addition to the four core courses, students seeking a Master of Arts in psychology under the substance abuse treatment psychology concentration must complete the following:

PSY 525 Psychological Assessment I	(3)
PSY 526 Psychological Assessment II	(3)
PSY 545 Chemical Dependency	(3)
PSY 547 Advanced Psychopathology	(3)
PSY 549 Basic Interviewing Skills in the Treatment of Substance Abuse	(2)
PSY 550 Advanced Psychotherapy	(3)
PSY 551 Intervention Strategies in Alcohol & Drug Problems	(3)
PSY 552 Ethical and Legal Issues in Mental Health	(1)
PSY 594 Clinical Psychology Practicum	(2)
PSY 598 Internship	(3)

**Applied behavior analysis concentration requirements (51 semester hours):**

Students in the applied behavior analysis concentration must take PSY 517, 520 and 556 to fulfill three of the four academic core requirements and may select from PSY 510 or 565 for the fourth. In addition to the four core courses, students seeking a Master of Arts in psychology under the applied behavior analysis concentration must complete the following:

PSY 518 Applied Behavior Analysis	(3)
PSY 519 Conceptual Issues in Behavior Analysis	(3)
PSY 522 Advanced Topics in Behavior Analysis	(3)
PSY 525 Psychological Assessment I	(3)
PSY 547 Advanced Psychopathology	(3)
PSY 550 Advanced Psychotherapy	(3)
PSY 552 Legal and Ethical Issues in Mental Health	(1)
PSY 596 Clinical Psychology Practicum in Applied Behavior Analysis	(2)
PSY 597 Internship in Psychology and Applied Behavior Analysis	(3)

**GRADUATE PROGRAM IN PSYCHOLOGY**  
**Course Descriptions**

**PSY 510. Cognitive Psychology (3)** Prerequisite: Admission to the psychology graduate program or permission of instructor. Examination and evaluation of research, theories and methods addressing cognitive processes such as memory, thinking, attention, and problem solving.

**PSY 515. Small-n Research Design (3)** Prerequisite: Permission of instructor. An investigation of the strategies and tactics of small-n (single-subject) experimental design and its role in behavior analysis. Topics include the conceptual basis and logic of the design, experimental control and internal validity (e.g., treatment of behavioral variability), data analysis, and interpretation of results.

**PSY 516. (416) Adult Development and Life Transitions (3)** Explores the major normative and nonnormative changes which take place during adulthood. Operating from a lifespan perspective, topics include an examination of how adults initiate, understand, cope with and resolve life transitions (e.g. parenting, loss, illness, career change, relationship change).

**PSY 517. Learning and Behavior Analysis (3)** Prerequisite: Admission to the psychology graduate program or permission of instructor. Advanced topics in animal and human learning and the analysis of behavior, including theories, research methods, and experimental findings.

**PSY 518. Applied Behavior Analysis (3)** Prerequisite: Permission of instructor. An examination of the methodological, empirical, and conceptual issues involved in the extension of behavior-analytic principles to applied settings. Topics include a review of basic principles in behavior analysis, issues of behavioral measurement, functional analysis of behavior, design and implementation of contingency management programs and evaluation of behavioral programs.

**PSY 519. Conceptual Issues in Behavioral Analysis (3)** Prerequisite: Permission of instructor. An investigation of the theoretical foundations of behavior analysis and conceptual issues associated with its application. Topics include the definitions of stimulus and response, distinctions between operant and respondent behavior, radical behaviorism and the nature of private events, and the extension of behavioral-analytic principles to a wide variety of domains.

**PSY 520. Developmental Psychology (3)** Prerequisite: Open only to psychology graduate students or by permission of instructor. Child psychology is a scientific field devoted to understanding normative human development and individual differences from conception through adolescence. This course examines and evaluates research and theories concerning social, emotional, cognitive, and physical development.

**PSY 522. Advanced Topics in Behavior Analysis (1)** Prerequisite: Permission of instructor. Methodological, empirical, and applied topics in behavior analysis. Emphasis is on the primary literature in methodological, experimental, and applied aspects of behavior analysis and on the acquisition and influence of students' presentation and discussion skills. May be repeated for credit.

**PSY 524. The Psychology of Aging (3)** Prerequisite: Course in aging or gerontology or permission of instructor. Advanced topics on the effects of aging on a variety of psychological processes including attention, memory, complex cognition, personality, mental health, and social support.

**PSY 525. Psychological Assessment I (3)** Prerequisite: Admission into the substance abuse treatment psychology concentration and permission of instructor. Role, administration, and responsible uses of psychological testing. Topics include administration and interpretation of basic vocational, aptitude, intelligence, and personality tests and interpretation of assessment reports prepared by others.

**PSY 526. Psychological Assessment II (3)** Prerequisite: PSY 525. Topics include objective personality assessment, objective psychopathology assessment, behavioral and physiological assessment, projective testing, substance abuse assessment, and report writing. Course will include instruction and rehearsal in test administration and interpretation. A grade of "B" or better must be earned for subsequent registration in PSY 594.

**PSY 545. (445) Chemical Dependency (3)** Prerequisite: Course in drugs and behavior or permission of instructor. Topics include basic psychopharmacology, theory, method, and research in the study of substance abuse and advanced consideration of causes, consequences and treatments of the major addictive disorders.

**PSY 547. Advanced Psychopathology (3)** Prerequisite: Course in psychopathology and permission of instructor. Etiology, assessment, and treatment of the major psychological disorders. Emphasis is on appropriate use of diagnostic systems and on ethical and legal issues in diagnosis.

**PSY 549. Basic Interviewing Skills in the Treatment of Substance Abuse (2)** Prerequisite: Admission into the substance abuse treatment psychology concentration or permission of instructor. Introduction to therapeutic interviewing and active listening skills that will facilitate behavior change in substance abusing clients. Format includes lecture, readings, and experiential exercises. A grade of "B" or better must be earned for subsequent registration in PSY 550.

**PSY 550. Advanced Psychotherapy (3)** Prerequisite: Admission into the substance abuse treatment psychology concentration, PSY 547, an undergraduate course in theories of psychotherapy or counseling, and permission of the instructor. . Advanced study of major theories of psychotherapy, psychotherapy research, and psychotherapy skills. Practical interviewing and intervention skills are emphasized. Format includes lecture, independent reading, and experiential exercises.

**PSY 551. Intervention Strategies in Alcohol and Drug Problems (3)** Prerequisite: PSY 545, PSY 550, and permission of instructor. Review of multidisciplinary theory and practice in treatment of alcohol and drug dependent clients. Topics include nondirective approaches, cognitive/behavioral approaches, 12-step approaches, family therapy, and group process. Format includes lecture and experiential exercises.

**PSY 552. (452) Ethical and Legal Issues in Mental Health (1)** Prerequisite: Permission of instructor. Ethical and legal issues involved in psychological testing, research, and treatment. Topics include confidentiality, networking with other agencies, involuntary commitment, psychology and the law, and review of ethical principles in psychology and applied behavior analysis.

**PSY 555. Psychological Research Methods I (4)** Prerequisite: Course in research methods in psychology and permission of instructor. Advanced study of research design and statistical analysis applicable to research in psychology. Topics, taught from an advanced perspective, include analysis of variance, correlational and nonparametric techniques.

**PSY 556. Advanced Physiological Psychology (3)** Prerequisite: Open only to psychology graduate students or by permission of instructor. Advanced topics in the anatomical and physiological study of the nervous system and behavior. Topics include brain-behavior relationships, neuropathologies, advantages and disadvantages of different techniques in neuroscience, and brain mechanisms of reward and drug addiction.

**PSY 565. Personality and Social Psychology (3)** Prerequisite: Open only to psychology graduate students or by permission of instructor. Current research trends in social and personality psychology. Emphasis is on the relation of personality and situational factors in determining behavior.

**PSY 579-580. Advanced Research Practicum (1-1)** Students may participate in a variety of different research projects. Ongoing research opportunities include practica in cognitive development, behavioral pharmacology, neuropharmacology, animal behavior, social psychology, clinical issues, behavioral medicine and others.

**PSY 589. Psychological Research Methods II (3)** Prerequisite: PSY 555. Overview of the various research strategies and designs used in psychology. Application and extension of methods learned in Psychological Research Methods I to contemporary research problems in psychology.

**PSY 591. Directed Independent Study (1-3)** May be repeated once for credit.

**PSY 592. Special Topics in Psychology (1-3)** Prerequisite: Permission of instructor. Study of topics or issues not covered in existing classes. Elective course that may be repeated for credit.

**PSY 594. Clinical Psychotherapy Practicum (2-4)** Prerequisite: Completion of all relevant clinical coursework and consent of instructor. Practical experience at local agencies, supervision and seminar on campus. Application of ethical principles and development of clinical skills such as interviewing, assessment, and for ABA students, behavior analytic skills including functional assessment, contingency management and behavioral programming.

**PSY 595. Seminar (3)** Prerequisite: Permission of instructor. Advanced topics in psychology. Examples of seminars offered include: Advanced Topics in Substance Abuse, Animal Behavior, Behavioral Neuroscience, Behavior Analysis, Behavioral Medicine, Chemical Dependency, Clinical Neuropsychology, Cognitive Psychology, Developmental Psychology, Dual Diagnosis, Family Therapy, Psychological Aspects of HIV Infection, Psychopharmacology, Psychotherapy, Rehabilitation Psychology, Sensation and Perception, Social and Community Psychology, Statistics and Computer Applications, and Women and Alcohol. May be repeated for additional credit.

**PSY 596. Clinical Psychology Practicum in Applied Behavior Analysis (2)** Prerequisites: Completion of all relevant clinical and behavior analysis coursework and consent of instructor. Practical experience at local agencies, supervision and seminar on campus. Application of ethical principles and development of clinical applied behavior analysis skills such as interviewing, functional assessment, contingency management and behavioral programming.

**PSY 597. Internship in Psychology and Applied Behavior Analysis (1-3)** Prerequisites: Completion of all relevant clinical and behavior analysis coursework and consent of instructor. One thousand hours of supervised practice in an applied setting where psychology and applied behavior analysis are practiced and supervised.

**PSY 598. Internship (1-3)** Prerequisite: PSY 525, PSY 547, PSY 551, PSY 552, PSY 594 with a grade of "B" or better, and permission of instructor. One thousand hours of supervised practice in the application of psychological assessment, applied behavioral analysis, or psychotherapy skills. Trainees work in an applied setting where substance abuse treatment or applied behavior analysis is offered with regular consultation with a supervisor.

**PSY 599. Thesis in Psychology (1-6)** Prerequisite: PSY 580. Intensive study of topic selected by student and approved by thesis committee. Includes definition of problem, review of related literature, application of appropriate methodology, and interpretation of results and conclusions. Oral presentation and defense of thesis required.

## MASTER OF PUBLIC ADMINISTRATION

The Master of Public Administration (MPA), housed in the Department of Public and International Affairs in the College of Arts and Sciences, is an interdisciplinary, terminal professional degree designed to: provide a broad education for individuals expecting to enter government and nonprofit institutions and who aspire to management positions; enhance the capabilities and performance of those individuals currently in management positions in southeastern North Carolina; produce relevant public administration research; and provide active public service aimed at the support and improvement of public administration and nonprofit management in southeastern North Carolina.

The three primary foci of the MPA program are as follows:

- 1) Skill in the Management of Public/Nonprofit Organizations
  - human resources
  - budgeting and financial processes
  - information management, including computer systems and applications
  - application of quantitative and qualitative techniques in policy analysis, program development, program evaluation, and policy and program implementation
  - decision-making and problem-solving
- 2) Understanding of Public Policy and Organizational Environment
  - political institutions and processes
  - legal institutions and processes
  - economic institutions and processes
  - social institutions and processes
  - organization and management concepts and behavior
- 3) Awareness of Ethics in the Management of Public/Nonprofit Organizations
  - responsible exercise of administrative discretion in a political environment
  - understandable and accurate communication of data to citizens and elected officials
  - advancing the public interest

Furthermore, concentrated areas of study will be provided in:

- Coastal Planning and Management
- Environmental Policy and Management
- Urban and Regional Policy and Planning
- Nonprofit Management
- Marine Policy
- Public Management
- Customized concentrations

### Admission Requirements

Deadline for submitting applications for fall admission is June 15 and October 15 for spring admission. Applicants seeking admission to the Master of Public Administration program are required to submit the following to the Graduate School:

1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. Official scores on the Graduate Record Exam (GRE) or the Graduate Management Admission Test (GMAT).
4. Three recommendations from individuals who are in a position to evaluate the applicant's professional competence as well as potential for graduate study (ideally at least one reference should be an academic instructor).
5. A personal statement describing educational and professional experiences, their reasons for pursuing graduate study in public administration, and career goals
6. Resume
7. Optional writing sample

Applicants seeking admission to the program must have a bachelor's degree from an accredited college or university, or its equivalent from a foreign institution of higher education based on a four-year program; a strong academic record with an average GPA of 3.0 or better in the undergraduate program; academic potential as indicated by satisfactory performance on the GRE General Test or GMAT. Individuals who fall below a specified criterion may be admitted if other factors indicate potential for success. Individuals with identified deficiencies may be accepted provisionally with specified plans and goals for the remediation of these deficiencies. Such remediation may include a requirement of additional hours beyond those normally required for the degree.

## Degree Requirements

### Option 1 - Non-Thesis

The program requires the satisfactory completion of 42 credit hours of approved graduate level courses or a minimum of 39 credit hours if the internship or practicum requirement is waived (see below).

The program requirements consist of the following: 18 credits of core classes designed to provide the basic skills needed by managers and policy analysts working in public and nonprofit organizations; 3 credits of an internship or practicum designed to link theory with practice; three credits of an applied skill-based elective; and 12 credits of an approved concentration. Students can take their remaining six to nine credits from electives offered by the Department of Public and International Affairs or choose approved electives offered by other departments or universities.

### Option 2 - Thesis

Students wishing to complete a thesis may do so by pursuing a thesis option which requires:

- 1) Creating a Thesis Committee consisting of a chairperson and two additional members of the Graduate Faculty. At least two members of the committee including the chairperson must be from the Department of Public and International Affairs. This committee will oversee the student's thesis. Students are advised to create this faculty committee no later than the third semester of enrollment.
  - 2) Prepare and defend a thesis proposal following departmental guidelines.
  - 3) Prepare and defend a thesis that is acceptable to the individual's thesis committee.
  - 4) Complete at least 6 hours of PLS 599 Thesis
  - 5) Complete at least 45 hours of graduate credit, three hours more than students who do not pursue this option.
- Students who pursue the thesis option are not required to take PLS 595: The Capstone Seminar in Public Administration.

### Core Requirements (18 credit hours)

All students are required to complete the following classes:

PLS 500	Managing Public and Nonprofit Organizations	(3)
PLS 501	Quantitative Methods	(3)
PLS 502	Public Human Resources Administration	(3)
PLS 503	Public Budgeting and Finance Administration	(3)
PLS 505	Policy Analysis	(3)
PLS 595	Capstone Seminar in Public Administration	(3)

### Internship or Practicum (3 credit hours)

Students must do at least 3 credit hours of an internship or practicum unless the requirement is waived. In general, the practicum will be the option used by working professionals who do not have the flexibility to participate in an internship. The practicum requires an applied research paper(s) examining a management or policy issue at the student's work place. Requests for a waiver from the internship or practicum requirement must be made in writing and be approved by the student's advisor and the MPA coordinator. Waivers will only be considered if the student can demonstrate a minimum of five years of significant management or policy-related professional experience or the student has completed a comparable experience that the MPA coordinator has determined is a suitable substitute for the internship or practicum requirement.

PLS 594	Practicum in Public Administration	(3-6)
PLS 598	Internship in Public Administration	(3-6)

### Applied Skill-Based Electives (3 credit hours)

All students are required to take one of the following applied skill-based electives, however, students can take additional classes from this list as electives or concentration courses. Students should consult with their advisors to select the appropriate course.

PLS 504	Computer Applications and MIS in Public Administration	(3)
PLS 506	Program Evaluation	(3)
PLS 507	Applied Management Tools, Skills, and Techniques	(3)
PLS 514	Conflict Resolution	(3)
PLS 541	Public Economics and Cost-Benefit Analysis	(3)
PLS 545	Government Planning and Geographic Information Systems	(3)
GGY 524	Geographic Information Systems	(3)
EVS 578	Hazardous Waste Operations and Emergency Response (HazWOpER)	(3)
ANT 500	Ethnographic Research Methods	(3)
SST 505	Data Analysis	(3)

SST 511	Design of Experiments and Analysis of Variance	(3)
SST 512	Applied Regression and Correlation	(3)
SST 525	Categorical Data Analysis	(3)
SST 530	Introduction to Non-parametric Statistics	(3)
SST 535	Applied Multivariate Analysis	(3)
SST 540	Linear Models and Regression Analysis	(3)
SST 565	Applied Probability	(3)
SST 569	Stochastic Processes in Operations Research	(3)
SST 590	Case Studies in Statistical Consulting	(3)
ENG 551	Topics in Professional Writing	(3)
Or other approved electives		

**Concentrations (12 credit hours)**

All students are also required to pursue a concentrated area of study in Coastal Planning and Management (12 credits), Environmental Policy and Management (12 credits), Marine Policy (12 credits), Nonprofit Management (12 credits), Public Management (12 credits), or Urban and Regional Policy and Planning (12 credits). Students can also elect to design their own twelve credit concentrations in areas such as historic preservation, health policy, gerontology and public history. Students wishing to design their own concentrations should consult their advisor or the MPA coordinator.

**Coastal Planning and Management (12 credit hours)**

All students pursuing a concentration in coastal management must complete the following requirements:

PLS 521	Foundations of Coastal and Environmental Management	(3)
PLS 527	Planning Theory and Planning Law	(3)

Students must take an additional six credit hours of an approved elective.

Choose six credit hours from the following list of approved electives:

EVS 570	Advanced Environmental Law and Policy	(3)
GGY 526	Environmental Geographic Information Systems	(3)
GGY 578	Historic Preservation Planning	(3)
GLY 558	Introduction to Coastal Management	(3)
PLS 513	Politics, Planning and Urban Sprawl	(3)
PLS 517	Strategic Planning and Management for Public and Nonprofit Organizations	(3)
PLS 522	Field Seminar in Coastal Management	(3)
PLS 524	Managing Coastal Hazards	(3)
PLS 525	Managing Coastal Ecosystems	(3)
PLS 528	Local Government Administration	(3)
PLS 543	Environmental Policy Analysis	(3)
PLS 544	Resource Economics	(3)
PLS 545	Government Planning and Geographic Information Systems	(3)
Or other approved elective		

**Environmental Policy and Management (12 credit hours)**

All students pursuing a concentration in environmental management must complete the following requirements:

EVS 501	Introduction to Environmental Problems and Policy	(3)
PLS 543	Environmental Policy Analysis	(3)

Choose six credit hours from the following list of approved electives:

BIO 562	Wetland Management	(3)
BIO 568	River Ecology	(3)
EVS 570	Advanced Environmental Law and Policy	(3)
EVS 578	Hazardous Waste Operations and Emergency Response (HazWOpER)	(3)
GGY 526	Environmental Geographic Information Systems	(3)
GLY 520	Global Climate Change	(3)
PLS 520	Seminar in Coastal Processes and Problems	(3)
PLS 521	Foundations of Coastal and Environmental Management	(3)
PLS 522	Field Seminar in Coastal Management	(3)
PLS 525	Managing Coastal Ecosystems	(3)
PLS 540	Environmental Management	(3)
PLS 544	Resource Economics	(3)
Or other approved electives		

**Urban and Regional Policy and Planning (12 credit hours)**

All students pursuing a concentration in public policy analysis must complete the following requirements:

- PLS 513 Regional Planning, Politics, and Policy (3)  
PLS 527 Planning Theory and Planning Law (3)

Students must take an additional six credit hours of an approved elective.

Choose six credit hours from the following list of approved electives:

- GGY 524 Geographic Information Systems (3)  
PLS 506 Program Evaluation (3)  
PLS 514 Conflict Resolution (3)  
PLS 521 Foundations of Coastal and Environmental Management (3)  
PLS 528 Local Government Administration (3)  
PLS 541 Public Economics and Cost-Benefit Analysis (3)  
Or other approved electives

**Nonprofit Management (12 credit hours)**

All students pursuing a concentration in nonprofit management must complete the following requirements:

- PLS 530 Management Practices in Nonprofit Organizations (3)  
PLS 531 Resource Development in Nonprofit Organizations (3)

Choose six credit hours from the following list of approved electives:

- PLS 507 Applied Management Tools, Skills, and Techniques (3)  
PLS 508 Ethics and Leadership in Public Life (3)  
PLS 532 Issues in Nonprofit Management (3)  
PLS 542 Management Interorganizational Relations (3)

Or other approved electives

**Marine Policy (12 credit hours)**

All students pursuing a concentration in marine policy must complete the following requirements:

- PLS 543 Environmental Policy Analysis (3)  
PLS 544 Resource Economics (3)

Choose three credit hours from the following list of approved electives:

- BIO 558 Biology of Recreational and Commercial Fish (3)  
BIO 560 Estuarine Biology (4)  
BIO 562 Wetland Management (3)  
BIO 564 Biological Oceanography (3)  
BIO 568 River Ecology (3)  
BIO 585 Special Topics in Advanced Biology (3)  
BIO 591 Directed Independent Study (1-4)  
CHM 575 Chemical Oceanography (3)  
CHM 576 Chemical and Physical Analysis of Seawater (3)  
CHM 591 Directed Independent Study (1-3)  
GLY 520 Global Climate Change (3)  
GLY 550 Marine Geology (3)  
GLY 558 Introduction to Coastal Management (4)  
GLY 591 Directed Independent Study (3)  
MSC 591 Directed Independent Study (1-4)  
PHY 575 Physical Oceanography (1-3)

Or other approved electives

Choose three credit hours from the following list of approved electives:

- EVS 570 Advanced Environmental Law and Policy (3)  
GGY 526 Environmental Applications in GIS (3)  
PLS 520 Seminar in Coastal Processes and Problems (3)  
PLS 521 Legal Foundation of Coastal and Environmental Management (3)  
PLS 522 Field Seminar in Coastal Management (3)  
PLS 524 Managing Coastal Hazards (3)  
PLS 525 Managing Coastal Ecosystems (3)

Students must take an additional three credit hours of an approved elective.

### Public Management (12 credit hours)

All students pursuing a concentration in public management must complete the following requirements:

- PLS 517 Strategic Planning and Management for Public and Nonprofit Organizations (3)  
 PLS 542 Managing Interorganizational Relations (3)

Students must take an additional six credit hours of an approved elective.

Choose six credit hours from the following list of approved electives:

- PLS 506 Program Evaluation (3)  
 PLS 507 Applied Management Tools, Skills and Techniques (3)  
 PLS 508 Ethics in Public Life (3)  
 PLS 509 Leading Public and Nonprofit Organizations (3)  
 PLS 514 Conflict Resolution (3)  
 PLS 515 Organizational Communication (3)  
 PLS 516 Leadership and Organizational Culture (3)  
 PLS 528 Local Government Administration (3)  
 PLS 530 Management Practices in Nonprofit Organizations (3)  
 PLS 541 Public Economics and Cost-Benefit Analysis (3)  
 Or other approved electives

### Customized Concentration (12 credit hours)

Students can also elect to design their own twelve credit concentration in areas such as historic preservation, health policy, or gerontology. Classes offered by the Department of Public and International Affairs, by other departments on campus, and by other universities can be part of the concentration. Students wishing to design their own concentrations should consult with their advisor or the MPA coordinator.

### Approved Electives (6 credit hours)

Students generally have to complete an additional 6 credits in order to fulfill their degree requirements. Students have the following options: take additional classes offered as applied skill-based electives; take classes offered as concentration classes; take classes listed as electives below; take approved electives offered by other departments or universities. Students should consult with their advisor and the MPA coordinator when planning their program of study and selecting their electives.

## GRADUATE PROGRAM IN PUBLIC ADMINISTRATION Course Descriptions

**PLS 500. Managing Public and Nonprofit Organizations (3)** Provides an overview of theories of organization, decision making, leadership, motivation, communication, and conflict resolution in the environment of public and nonprofit organizations.

**PLS 501. Quantitative Methods (3)** Issues and techniques in data collection and statistical analysis for managers and policy analysts in public and nonprofit organizations.

**PLS 502. Public Human Resources Development and Administration (3)** The study of policies, methods and techniques utilized in the public human resource function. Special attention is given to challenges reflecting contemporary demands in the areas of recruitment, training, compensation, performance evaluation, motivation, labor relations, sexual harassment, and diversity in the public workforce.

**PLS 503. Public Budgeting and Finance Administration (3)** Focuses on governmental budgeting and finance at the federal, state, and local level. Topics include budget types, budget preparation, politics of the budgetary process, tax policy, revenue sources, and other public finance issues. Attention is also paid to specific issues related to budgeting and finance issues in the nonprofit sector.

**PLS 504. Computer Applications and MIS in Public Administration (3)** Theory and application of the use of information technology to support decision making in public organizations. Topics include the use of the Internet to share and collect information, Geographic Information Systems, and appropriate software packages.

**PLS 505. Policy Analysis (3)** Examines the different approaches to public policy analysis and the various techniques that an analyst uses such as cost-benefit analysis. Students complete an applied policy analysis and present results to a simulated audience.

**PLS 506. Program Evaluation (3)** Covers research methods and basic statistics including hypothesis testing and examines the theory and practice of program evaluation including the ethical issues related to the practice of program evaluation.

**PLS 507. Applied Management Tools, Skills, and Techniques (3)** Examines concepts, techniques, and tools used by organizations with a focus on improving management skills. Topics covered include managing meetings, giving presentations, interacting with the media, strategic planning, performance measurement, and contracting.

**PLS 508. Ethics in Public Life (3)** Examination of ethical principles as they apply to the practice of public administration; basic legal constraints such as conflict of interest laws; role of codes of ethics; and models for the responsible exercise of administrative discretion by public officials.

**PLS 509. Leading Public and Nonprofit Organizations (3)** Examines the theoretical and practical approaches to leading and managing public and nonprofit organizations.

**PLS 510. Introduction to Public Affairs (3)** Covers the rationales for public policy and critical concepts in public economics (e.g., market failures, public goods, externalities, monopolies, information asymmetries, and public choice theory). Class also examines the public policy process (e.g., context, agenda setting, implementation, evaluation, etc.), and the legal foundations of public administration (i.e., federalism, checks and balances, roles of the courts, etc.) and the basics of state and local politics in the U.S.

**PLS 513. Regional Planning Politics and Policy (3)** Explores the connection between formal planning processes and political decision making at the regional and local level for various policy issues (e.g., rapid development, sprawl, transportation, aging population, affordable housing, rural poverty, economic development, quality of life, etc.). Special attention is given to how planners and analysts provide advice to elected and non-elected decision makers.

**PLS 514. Conflict Resolution (3)** Examines the theoretical and practical perspectives and techniques for resolving conflict. Emphasis is placed on bargaining, negotiation, and conflict management techniques used in public and nonprofit organizations and interpersonal relationships.

**PLS 517. Strategic Planning and Management for Public and Non-profit Organizations (3)** Examines the theoretical and practical approaches to conducting strategic planning and management in public and nonprofit organizations.

**PLS 520. Seminar in Coastal Processes and Problems (3)** Examines various coastal management policies and problems from a variety of perspectives (e.g., legal, economic, political, scientific, etc.).

**PLS 521. Foundations of Coastal and Environmental Management (3)** Analyzes key policy issues and the laws, regulations, and decisions that influence the management of coastal land in North Carolina and the United States.

**PLS 522. Field Seminar in Coastal Management (3)** Field seminar that uses an applied project to examine the political, economic, and socio-cultural challenges facing coastal managers. It also examines the role of science in the policy and management process. Students are expected to collect and analyze data, prepare a report, and present their findings.

**PLS 524. Managing Coastal Hazards (3)** Explores the natural and technological hazards that threaten coastal areas, the principles of coastal hazard mitigation and the development of policy dealing with the preparedness, response to and recovery from the events.

**PLS 525. Managing Coastal Ecosystems (3)** Examines programs, policies, and approaches to managing coastal ecosystems such as watershed management, ecosystem management, command and control approaches, and market-based approaches.

**PLS 527. Planning Theory and Planning Law (3)** Course reviews and provides an overview of this history of the major urban/regional planning theories in the U.S. and Europe. Emphasizes the legal framework and case law connected to local land use policies and regulations

**PLS 528. Local Government Administration (3)** Examines the institutions, laws and policies that surround local government administration. It also examines contemporary issues and problems faced by town administrators from a variety of perspectives (e.g., legal, economic, social, political, societal, etc.)

**PLS 530. Management Practices in Nonprofit Organizations (3)** Introduction to theoretical foundations, structures, and processes of nonprofit organizations; historical development and impact of social, political, legal and economic environment in which nonprofit organizations exist; and complexities of organizational governance shared by volunteer and professional staff decision makers.

**PLS 531. Resource Development in Nonprofit Organizations (3)** Introduction to various resources important to nonprofit organizations including financial support, volunteers, and community awareness, and to the wide ranges of organization activities utilized for acquisition and maintenance of these resources, such as grant writing and fundraising strategies.

**PLS 532. Issues in Nonprofit Management (3)** Examination of the current managerial, legal, and political challenges facing nonprofit organizations.

**PLS 540. Environmental Management (3)** Examines selected policies and programs including both regulatory and non-regulatory approaches to environmental management in the United States.

**PLS 541. Public Economics and Cost-Benefit Analysis (3)** An applied policy analysis course covering basic economic concepts. The class will also provide an introduction to the techniques of cost-benefit analysis. Students complete an applied cost-benefit project and present results to a simulated audience.

**PLS 542. Managing Inter-organizational Relations (3)** Course provides an overview of the theory and practice of inter-organizational relations. Topics generally include inter-governmental relations, inter-governmental management, collaboration, networks, policy implementation and governance. Emphasis is placed on emerging trends from the new governance movement and the increased relationships between public, private, and nonprofit organizations in government service delivery.

**PLS 543. Environmental Policy Analysis (3)** Examines the fundamental factors that influence environmental policy in the United States. It also examines the different approaches to policy analysis and the techniques available to environmental policy analysis.

**PLS 544. Resource Economics (3)** Introduction to environmental and natural resource economics and policy. Emphasizes applied methods and results of use to practicing coastal managers. Topics include pollution regulation and pollution damage assessment, recreation and tourism impact analysis, public good valuation methods, the economics of land development and urban sprawl, and economic issues in forestry, wetlands and fisheries management.

**PLS 545. Government Planning and Geographic Information Systems (3)** Examines the use of government geographic information systems (GIS) in the context of land use planning and other applications in state and local government. Course provides an introduction to the theory and application of GIS, spatial data collection, relational databases, spatial analysis, and mapping.

**PLS 561. Comparative Public Administration (3)** Examines public administration in many different countries with a particular emphasis on development administration, the government-administration interface, and the administrative issues of cooperation between two or more countries.

**PLS 562. International Environmental Policy (3)** Examines major political issues related to national level and international environmental politics and policy-making. Emphasis is placed on democracy, political transition, levels of development, national cultural values, political institutions, and citizens as potential shapers of the nature and dynamics of environmental politics and vice versa as well as trans-boundary interactions and relations affecting the environment.

**PLS 591. Directed Individual Study in Public Administration (1-6)** Independent investigation of research problems or directed readings in a selected area of public administration.

**PLS 592. Special Topics in Public Administration (3)** Intensive study of selected topics in public administration. May be taken for credit three times, for a total of nine credit hours.

**PLS 594. Practicum in Public Administration (3-6)** The application of knowledge, concepts and analytical tools to contemporary issues that challenge public administrators. Individuals select special projects to pursue in local public and nonprofit organizations and conduct research under the guidance of a faculty member.

**PLS 595. Capstone Seminar in Public Administration (3)** Synthesizing experience at the end of the program where key concepts from the curriculum are integrated and applied to contemporary issues in public administration. Public administration as a profession and career opportunities for graduate students are discussed. Student completes an applied research project that integrates materials from the curriculum and the internship or practicum.

**PLS 598. Internship in Public Administration (3-6)** Participation in a field experience, including a journal and written report critically describing the student's responsibilities and experiences, focusing on linkages between the theory learned in coursework and the practice of public administration. Field experience will result from a supervised internship in a cooperating public or nonprofit organization. This course is graded satisfactory/unsatisfactory (S or U).

**PLS 599. Thesis in Public Administration (1-6)** Prerequisites: at least 30 hours toward completion of the master's degree and permission of the MPA coordinator. Intensive study of a topic selected by the student and approved by a thesis committee. Includes definition of problem, review of related literature, application of appropriate methodology, and interpretation of results and conclusions. Oral presentation and defense of thesis are required.

## MASTER OF SOCIAL WORK

The Department of Social Work, College of Arts and Sciences, offers an MSW degree program preparing graduates for advanced clinical practice in settings such as mental health, child welfare, family services, and medical social work. Social work practice is the professional and ethical application of social work theory and interventions that, in collaboration with the client, promotes individual emotional wellness, mental health, and family functioning, as well as enhancing the social environment. The program includes coursework in advanced social work practice based on professional knowledge and the related aspects of program development and management associated with the delivery of social work services.

The UNCW MSW program curriculum is constructed with a foundation first year and an advanced practice-focused second year. The foundation content includes human behavior and the social environment, research methods, social policy, professional values and ethics, clinical practice, and diversity issues in practice. Advanced year content includes coursework in advanced clinical research, clinical practice, the organizational and financial context of practice, and psychopathology. Extensive field placement in clinical practice settings with close supervision by faculty, clinical instructors and field supervisors is a key component of the degree program.

Social work education is accredited in the U.S. by the Council on Social Work Education. Accreditation of programs is linked to eligibility for licensure and certification in N.C. and all other states. The N.C. Social Work Certification and Licensure Board was established by the North Carolina Legislature to provide a standard of practice for the social work profession. Graduates of the UNCW MSW Program will qualify for State Certification at three levels: Licensed Clinical Social Worker, Certified Master Social Worker, and Certified Social Work Manager. In all of these cases, graduates must pass a state-sponsored exam. The LCSW requires, in addition, evidence of two years of post-masters clinical practice with LCSW supervision. The MSW program is fully accredited by the Council on Social Work Education.

The guiding themes of curriculum and program development include up-to-date social work practice knowledge and skill, the strengths focus, knowledge-based practice, and leadership. The Department of Social Work, has extensive regional involvement in social development programs and projects and it is anticipated that opportunities for graduate student participation in such activities will be available.

### Admission Requirements

Deadline for submitting applications for fall admission is February 1. Applicants seeking admission are required to submit the following to the Graduate School:

1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. Official scores on the Graduate Record Examination (verbal, quantitative, and analytical writing)
4. Three recommendations
5. A personal statement describing educational and professional experiences, reasons for pursuing graduate study in social work, and career goals
6. Professional resume

**In addition to the above requirements the successful candidate for admission must have the following:**

1. Bachelor's degree from an accredited college or university (or equivalent for non-U.S. students)
2. 3.0 GPA (on 4.0 point scale)
3. Liberal Arts base of undergraduate study including social and behavioral science courses

### Degree Requirements

The program requires satisfactory completion of 62 credit hours, including four hours of electives.

#### Fall semester year 1 (15 semester hours)

SWK 500 Clinical Practice I: Collaborative Strengths Based Relationships in Social Work Practice (and lab)	(3)
SWKL 500 Clinical Practice I Lab	(1)
SWK 509 Pre-Field Graduate Seminar	(2)
SWK 513 The Idea of Social Work: History, Philosophy and Theory of Social Work	(3)
SWK 514 Social Policy and Service Organizations	(2)
SWK 516 Ethical Principles in Social Work Practice	(1)
SWK 520 Life Transitions and Human Development in the Social Environment	(3)

#### Spring semester year 1 (15 semester hours)

SWK 501 Clinical Practice II: Solution-Focused Generalist Social Work Practice	(3)
SWKL 501 Clinical Practice II Lab	(1)
SWK 506 Research in Clinical Practice I: Evaluating Social Work Practice	(3)
SWK 510 Field Instruction and Graduate Seminar I	(5)
SWK 522 Social Diversity and Social Work Practice	(3)

**Fall semester year 2 (16 semester hours)**

SWK 502	Clinical Practice III: Cognitive-Behavioral and Motivational Social Work Practice	(3)
SWKL 502	Clinical Practice III Lab	(1)
SWK 507	Research in Clinical Practice II: Field Research	(2)
SWK 511	Field Instruction and Graduate Seminar II	(5)
SWK 521	Mental Health and Psychopathology: Assessment and Differential Diagnostics	(3)
Elective	Social Work Elective	(2)

**Spring semester year 2 (16 semester hours)**

SWK 503	Clinical Practice IV: Integrated Motivational, Cognitive, and Solution-Focused Practice	(3)
SWKL 503	Clinical Practice IV Lab	(1)
SWK 508	Capstone Paper and Special Topics Course	(2)
SWK 512	Field Instruction and Graduate Seminar III	(5)
SWK 523	Organizational Context of Clinical Social Work Practice: Management, Financing, Marketing and Policy	(3)
Elective	Social Work Elective	(2)

### GRADUATE PROGRAM IN SOCIAL WORK Course Descriptions

**SWK 500. Clinical Practice I: Collaborative Strengths-Based Relationships in Social Work Practice (3)** Corequisite: SWKL 500. Establishing collaborative solution-focused relationships that respect diversity and uniqueness when working with individuals, groups, families and communities while building upon strengths and resiliency.

**SWKL 500. Clinical Practice I Lab (1)** Corequisite: SWK 500. This skills lab will provide with the opportunity to practice the knowledge gained in SWK 500.

**SWK 501. Clinical Practice II: Solution-Focused Generalist Social Work Practice (3)** Corequisite: SWKL 501. Strengths-based and solution-focused practice at all levels of generalist social work collaboration with individuals, families, groups, agencies, and communities. Crisis, trauma, loss, case management and assessment will be covered.

**SWKL 501. Clinical Practice II Lab (1)** Corequisite: SWK 501. This skills lab will provide students with the opportunity to practice strengths-based and solution-focused skills and interventions learned in SWK 501.

**SWK 502. Clinical Practice III: Cognitive-Behavioral and Motivational Social Work Practice (3)** Prerequisites: SWK 500, SWK 501. Corequisite: SWKL 502. This course will provide an overview of the principles and practice skills of cognitive-behavioral and motivational interviewing methods, including assessment and interventions useful with individuals, families, and groups in diverse practice settings.

**SWKL 502. Clinical Practice III Lab (1)** Corequisite: SWK 502. The skills lab will provide an opportunity to practice the knowledge gained in SWK 502.

**SWK 503. Clinical Practice IV: Integrated Motivational, Cognitive, and Solution-Focused Practice (3)** Corequisite: SWKL 503. Strengths-based integration of the motivational, cognitive, and solution-focused models for advanced practice with individuals, families, and groups.

**SWKL 503. Clinical Practice IV Lab (1)** Corequisite: SWK 503. Strengths-based integration of motivational, cognitive, and solution-focused models of practice will be applied to working with individuals, families, and therapeutic groups.

**SWK 504. Behavioral Approach to Social Work Practice (2)** The theory and application of the behavioral model in social work that will assist in establishing a historical perspective to the cognitive-behavior model.

**SWK 506. Research in Clinical Practice I: Evaluating Social Work Practice (3)** Elements of clinical research in social work including design, ethical issues, and understanding findings.

**SWK 507. Research in Clinical Practice II: Field Research (2)** Prerequisite: SWK 506. Design and implementation of research processes in field settings.

**SWK 508. Capstone Paper and Special Topics Course (2)** Prerequisites: SWK 506, SWK 507. Major paper and presentation in conference setting.

**SWK 509. Pre-Field Graduate Seminar (2)** Establishing field placement, learning in the field setting, use of supervision and general preparation for field practicum. Leadership lecture series is an ongoing component of graduate seminar in each semester.

**SWK 510. Field Instruction and Graduate Seminar I (5)** Prerequisite SWK 509. 300 hour placement in clinical social work position with supervision. Seminar focus on application of professional knowledge and clinical technique.

**SWK 511. Field Instruction and Graduate Seminar II (5)** Prerequisites: SWK 509, SWK 510. 300 hour placement in clinical social work position with supervision. Seminar focus on application of professional knowledge and clinical technique.

**SWK 512. Field Instruction and Graduate Seminar III (5)** Prerequisite: SWK 511. 300 hour placement in clinical social work position with supervision. Seminar focus on application of professional knowledge and clinical technique.

**SWK 513. The Idea of Social Work: History, Philosophy and Theory of Social Work Practice (3)** The historical and intellectual background of current practice theories and the organizational context of social work practice.

**SWK 514. Social Policy and Service Organizations (2)** Analysis of social policy issues related to the social, community and organizational context of social work services.

**SWK 516. Ethical Principles in Social Work Practice (1)** The philosophical basis of professional ethics with specific consideration of the National Association of Social Workers Code of Ethics.

**SWK 520. Life Transitions and Human Development in the Social Environment (3)** Understanding the life course from perspectives that combine social, biological and psychological knowledge.

**SWK 521. Mental Health and Psychopathology: Assessment and Differential Diagnostics (3)** Utilization of the DSM IV in making differential diagnosis and mental status assessments. Basic psychotropic medications introduced.

**SWK 522. Social Diversity and Social Work Practice (3)** Implications of social diversity, including values, lifestyles, gender, socioeconomic status, ethnicity, culture, spirituality, and sexual orientation in the social work relationship.

**SWK 523. Organizational Context of Clinical Social Work Practice: Management, Financing, Marketing and Policy (3)** Social work service delivery and finance in public and private organizations, including grant development.

**SWK 526. Strengths-Based Practice with Severe and Persistently Mentally III (3)** Prerequisite: SWK 500 and 501. Advanced client-directed, strengths-based assessment and clinical practice, including case management.

**SWK 528. Advanced Practice in Chemical Abuse & Dependence (3)** Review of social work practice and programs in the field of substance use, abuse, and dependency, with extensive review of relevant research and program evaluation.

**SWK 530. Social Work in the Health Care Setting (3)** Examination of critical issues in social work practice in health care. Advanced practice skills and strategies for work with individuals, families, groups, interdisciplinary teams, and service providers in a variety of health care settings. Social work practice examined in the context of psychosocial consequences of illness, current health care delivery systems, technological advances, and changing regulatory approaches and organizational structures.

**SWK 532. Health and Mental Health Issues of Women (3)** Examination of health and mental health conditions applicable to adolescent and adult women, and the impact these have on individual and family development and functioning.

**SWK 534. Advanced Social Work Practice in Schools (3)** Examination of public school social work policy and practice, emphasizing solution-focused practice in the context of the school-family-community environment.

**SWK 536. Strengths-Based Rural Social Work Practice (3)** Examining the elements of rural communities and families that sustain and endanger rural life. Emphasis on building knowledge of strengths based social work practice with individuals, families and communities through service-learning in rural communities and with the people who live there.

**SWK 538. Social Work Practice with Older Adults (3)** Examination of strengths-based practice issues related to social work practice with older adults and their families. Practice encompasses individual counseling and therapy, support groups, psycho-education, research models and findings, service delivery systems, and relevant state, federal and international policies.

**SWK 540. Law, Liability, and Litigation in Social Work Practice (3)** Review of relevant law and professional regulation in social work practice with selected case illustrations.

**SWK 545. Developing and Managing a Practice (3)** Review of the current character of private practice in social work with emphasis upon the organizational and financial aspects of developing and operating a fee-for-service service organization.

**SWK 550. Practice with Children and Adolescents (3)** Focus on strengths- based social work practice with children, adolescents, and their families. Emphasis will be placed on assessment and practice strategies, particularly as they pertain to special problems related to life conditions and events that affect children.

**SWK 552. Advanced Practice in Child Protective Services (3)** Social, historical, and political contexts of child abuse and neglect in the U.S. and internationally. The current child protective service system will be reviewed, including child welfare practices and other specialized treatment models in child abuse and neglect.

**SWK 591. Directed Independent Study (1-3)** Prerequisite: Overall GPA of at least 3.0, and consent of instructor, department chair, and graduate school. Involves investigation under faculty supervision beyond what is offered in exiting courses.

**SWK 595. Special Topics in Social Work (1-3)** Intensive study of selected topics in social work. May be taken for 1, 2 or 3 credit hours.

## MASTER OF ARTS IN SPANISH

The Department of Foreign Languages and Literatures offers a program leading to the Master of Arts in Spanish. The goals of the program are: (1) to raise the level of communicative competence of native and non-native speakers of Spanish; (2) to provide critical and practical skills necessary for analyzing, assessing and addressing academic and societal issues related to Hispanic language and culture; (3) to provide knowledge and advanced skills in Spanish language and Hispanic culture necessary for higher-level graduate work; (4) to increase, improve and promote cultural understanding and awareness of regional, national and international Spanish-speaking communities; and (5) to produce professionals capable of dealing with the demands brought by the ever-increasing U.S. Hispanic population and by the global job market.

### Admission Requirements

Applicants are required to submit the following materials to the Graduate School:

1. An application for graduate admission.
2. Official transcripts of all college work (undergraduate and graduate).
3. Three recommendations.
4. Two recorded speaking samples, one in English and one in Spanish, in which the applicant introduces her/himself, describes a person she/he admires, or describes a trip she/he took.
5. A 500-word written statement of objectives in English.
6. A 500-word writing sample in Spanish in which the applicant states and defends an opinion.

Applicants seeking admission to the master's degree program in Spanish must hold a bachelor's degree in Spanish from an accredited college or university with an overall 3.00 GPA or its equivalent (determined by a personal interview with the faculty or an officially recognized test procedure, such as an "intermediate high" rating on the ACTFL proficiency scale). Admissions decisions are based upon the examination of several factors, and where other indicators of success warrant, individuals who fall below the established criteria may still be considered for admission.

The application deadline for fall admission is April 1 (March 1 for consideration for financial aid and assistantships); for spring admission, the application deadline is November 1.

### Degree Requirements

The M.A. program requires a minimum of 30 semester hours of graduate study (only six of which may be transferred from another institution) and the successful completion of capstone written and oral individualized comprehensive exams based on coursework. The 30 hours of coursework must be distributed as follows:

1. Required writing course (3 hours): SPN 500 Advanced Writing Techniques.
2. Literature and civilization course requirement. The student must choose 3 of the following 4 courses (9 hours total): SPN 511 Topics in Spanish Civilization, SPN 512 Topics in Spanish American Civilization, SPN 521 Studies in Spanish Literature, and SPN 522 Studies in Spanish American Literature.
3. Electives (21 hours) chosen from any of the remaining graduate courses. [SPN 511, 512, 521, 522 (variable topics) may be taken to satisfy this requirement provided the topic is different from the topic used to satisfy the literature/civilization requirement.]

A student must maintain no less than a 3.0 GPA on all graduate-level courses and has five calendar years to complete his/her master's degree program. This five-year period begins with the student's first term of work after formal admission to the program.

## POST-BACCALAUREATE CERTIFICATE PROGRAM IN HISPANIC STUDIES

The Department of Foreign Languages and Literatures offers an 18-hour post-baccalaureate program in Hispanic Studies. Specific goals of the certificate program are: 1) to prepare qualified candidates for cross-cultural professions; 2) to enable students to function at a high level of linguistic proficiency in Spanish; and 3) to prepare community college, four-year college or university instructors, who, according to SACS guidelines, must have at least 18 hours of graduate credit in Spanish in order to teach Spanish. Courses are taught by faculty with specializations in Hispanic linguistics, film, literature, culture, business, translation, and foreign language pedagogy.

### Admission Requirements

Applicants seeking admission to the graduate certificate program must hold a bachelor's degree in Spanish from an accredited college or university with an overall 3.00 GPA or its equivalent (determined by a personal interview with the faculty or an officially recognized test procedure, such as an "intermediate high" grading on the ACTFL). Applicants are required to submit the following to the Graduate School:

1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. Three references
4. A 500-word essay in Spanish in which applicant describes her/his reasons for wanting to pursue graduate work in Spanish

5. An audio recording in which the applicant introduces her/himself, describes a person she/he admires, or describes a trip she/he took in Spanish.

\* These admissions requirements apply only to the graduate certificate program in Hispanic Studies. Students interested in combining the certificate program with a master's degree will have to meet all admission criteria for that degree.

### Certificate Requirements

#### I. 9 hour core (choose one from each category)

- a. SPN 500 Advanced Writing Techniques (3)
- b. SPN 511 Topics in Spanish Civilization (3)  
or  
SPN 512 Topics in Spanish American Civilization \*
- c. SPN 521 Studies in Spanish Literature (3)  
or  
SPN 522 Studies in Spanish American Literature \*

\* Students must choose at least one Spanish and one Spanish-American related course from these two categories.

#### II. 9 hours of electives (choose three or more classes from this list)

No more than three hours of SPN 591 (offered on a limited basis) will be accepted for credit.

- a. SPN 501 Translation Techniques & Practices (3)
- b. SPN 505 Conversation & Composition (3)
- c. SPN 595 Special Topics in Hispanic Studies (3)  
(Topics will vary but will include Business Spanish, Linguistics, Film, Performance Spanish, Spanish for Professionals, and Second Language Acquisition) (May be repeated for up to 6 hrs.)
- d. SPN 591 Directed Individual Study (3)

N.B. If a student has taken SPN 401 or SPN 405 at the undergraduate level, she/he must meet with the graduate director in order to be permitted to enroll in SPN 501 or SPN 505.

## GRADUATE PROGRAM IN SPANISH Course Descriptions

**SPN 500. Advanced Writing Techniques (3)** Intensive work on an advanced level in specific areas of writing. Topics may include essay writing, technical writing, writing for publication in professional journals, and journalism.

**SPN 501. (401) Translation Techniques & Practices (3)** Translation of various kinds of texts and documents. Practical application of translation theory and development of strategies for solving predictable translation problems.

**SPN 504. Spanish for Professionals (3)** Study of linguistic and cultural concepts pertinent to the various professions and directed toward students' individual interests and professional needs.

**SPN 505. (405) Conversation & Composition (3)** Emphasis on spoken Spanish and essay writing.

**SPN 507. (407) Topics in Spanish Phonetics and Phonology (3)** Prerequisite of SPN 307 and 308 or equivalent. Advanced study of Spanish phonetics and phonology. Topics will focus on laboratory phonology, auditory and acoustic phonetics, and experimental phonetics. May be repeated under a different subtitle.

**SPN 508. (408) Topics in Hispanic Linguistics (3)** Prerequisite: SPN 307 and 308 or equivalent. Advanced study of Hispanic linguistics. Topics will focus on history of the Spanish language, Spanish applied linguistics, dialectology, sociolinguistics, morphosyntax, semantics, and pragmatics. May be repeated under a different subtitle.

**SPN 511. Topics in Spanish Civilization (3)** Advanced study in geographical, historical, and cultural aspects of Spain. Topics will focus on specific time periods, geographic areas, or cultural phenomena. May be repeated under a different subtitle.

**SPN 512. Topics in Spanish American Civilization (3)** Advanced study in geographical, historical, and cultural aspects of Spanish America. Topics will focus on specific time periods, geographic areas, or cultural phenomena. May be repeated under a different subtitle.

**SPN 521. Studies in Spanish Literature (3)** Study of representative Spanish authors, literary movements, and genres. May be repeated under a different subtitle.

**SPN 522. Studies in Spanish American Literature (3)** Study of representative Spanish American authors, literary movements, and genres. May be repeated under a different subtitle.

**SPN 585. Hispanic Film (3)** Exploration and interpretation of Spanish and Latin American cinema in its theoretical, historical and cultural contexts.

**SPN 591. Directed Individual Study (1-3)** Involves investigation under faculty supervision beyond what is offered in existing courses. May not exceed 3 hours.

**SPN 595. Special Topics in Hispanic Studies (1-6)** Advanced study of topics related to Hispanic literature, culture, linguistics, language, and/or foreign language pedagogy. Subtitles will vary from semester to semester.

## ADDITIONAL GRADUATE COURSES

**GTA 501. Graduate Teaching Assistant Workshop (2)** Permission of instructor required. An introduction to the responsibilities of serving as a graduate teaching assistant or a teaching fellow. Topics for discussion include time management, student behavior, legal responsibilities, techniques of effective teaching, evaluation and use of technology in the classroom. To be graded with a "S" or "U."

**INT 594. International Exchange (1-12)** This is a placeholder course for international exchange program graduate-level participants so that program statistics can be monitored and maintained, so participants remain enrolled at UNCW while on the program, thus safeguarding their catalogue year, keeping active computer accounts, etc.

**STA 594. Study Abroad (1-12)** This is a placeholder course for Study Abroad program graduate-level participants so that program statistics can be monitored and maintained, corresponding tuition and fees may be applied, and so participants remain enrolled at UNCW while on the program, thus safeguarding their catalogue year, keeping active computer accounts, etc.

### DEPARTMENT OF ANTHROPOLOGY

**ANT 500. (445) Practicing Ethnography (3)** Ethnographic research methods and qualitative approaches. Topics covered include observation, focus groups, participant-observation, life history, interviewing, qualitative analysis, research ethics, collaborative projects. Field research as basis for seminar paper.

### DEPARTMENT OF PHILOSOPHY AND RELIGION

**PAR 505. Bioethics and Aging (1-3)** Examination of the principles and problems in the application of ethical theory to medical research and practice with emphasis on the special ethical problems of providing health care services to the aging population and involving elderly patients in medical research. May be taken for elective credit in the MALS program.

**PAR 515. Ethical Issues in Research (1-3)** Open only to graduate students. This course will address a wide range of ethical issues that arise in the conduct of research. Topics will include scientific misconduct and intellectual ownership; the protection of animals and human subjects; and the impact of research on society. Students will also explore ethical issues that arise in their specific disciplines.

**PAR 591. Directed Independent Study (1-3)** Open only to graduate students.

**PAR 595. Graduate Seminar (1-3)** Prerequisite: Graduate student status or consent of the constructor. Research and discussion of selected topics in philosophy and/or religious studies.

### DEPARTMENT OF PHYSICS AND PHYSICAL OCEANOGRAPHY

**PHY 575. (475) Physical Oceanography (3)** Prerequisite: College physics and calculus. An introduction to the descriptive and dynamical features of ocean circulation. Topics include: the physical properties of seawater; oceanic heat budget; dynamics of ocean currents; descriptive oceanography; waves and tides.

**PHY 576. (CHM 576) Chemical and Physical Analysis of Seawater (3)** Prerequisite: Permission of instructor. Study of modern chemical and physical measurements of seawater including salinity, alkalinity, pH, nutrients, and dissolved oxygen. Several class periods may also be devoted to working aboard an oceanographic research vessel while at sea.

**PHY 591. Directed Individual Study (1-3)**

**PHY 592. Special Topics (1-3)** Prerequisite: Permission of instructor. May be repeated for credit with different topics.

**PHY 599. Thesis (1-6)** Research for thesis and thesis preparation for marine science students.