
NOTIFICATION OF RIGHTS UNDER THE FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA)

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. These rights include:

1. The right to inspect and review the student's education records within 45 days of the day the University receives a request for access.

A student should submit to the registrar, dean, head of the academic department, or other appropriate official, a written request that identifies the record(s) the student wishes to inspect. The University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.

(2) The right to request the amendment of the student's education records that the student believes are inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA.

A student who wishes to ask the University to amend a record should write the University official responsible for the record, clearly identify the part of the record the student wants changed, and specify why it should be changed.

If the University decides not to amend the record as requested, the University will notify the student in writing of the decision and the student's right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

Note: The challenge of a student under this paragraph is limited to information which relates directly to the student and which the student asserts is inaccurate or misleading. With regard to a student's grade, this right does not permit the student to contest a grade on the grounds that a higher grade is deserved, but only to show that the grade has been inaccurately recorded.

(3) The right to provide written consent before the University discloses personally identifiable information from the student's education records, except to the extent that FERPA authorizes disclosure without consent.

The University discloses education records without a student's prior written consent under the FERPA exception for disclosure to school officials with legitimate educational interests. A school official is a person employed by the University in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff); contractors, consultants, volunteers and other outside parties to whom the institution has outsourced institutional services or functions instead of using University employees or officials (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks.

A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibilities for the University.

Upon request, the University also discloses education records without consent to officials of another school in which a student seeks or intends to enroll.

(4) The right to refuse to permit the designation of any or all of the following categories of personally-identifiable information as directory information, which is not subject to the above restrictions on disclosure: student's full name, permanent address and telephone number, local address and telephone number, e-mail address, Clemson identification number (the number that begins with a C on the student ID card and is also referred to as a student's XID), username, state of residence, date and place of birth, marital status, academic class, class schedule and class roster, name of advisor, major field of study, including the college, division, department or program in which the student is enrolled, participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance and graduation, degrees and honors and awards received including selection to a dean's list or honorary organization and the grade point average of students selected, and the most previous educational institution attended. Photographic, video, or electronic images of students taken and maintained by the University are also considered directory information.

Directory information may be disclosed by the University for any purpose, at its discretion. Any student wishing to exercise his/her right to refuse to permit the designation of any or all of the above categories as directory information must give written notification to the Registration Services Office (E-206 Martin Hall) by the last day to register for the enrollment period concerned as published in the Clemson University calendar.

(5) The right to file a complaint with the U.S. Department of Education concerning alleged failures by the University to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue, SW, Washington, DC 20202-5901.

DISCLOSURE OF EDUCATION RECORDS IN HEALTH AND SAFETY EMERGENCIES

If the University determines that there is an **articulable and significant threat to the health or safety of a student or other individuals**, FERPA allows disclosure of information from education records to **appropriate parties whose knowledge of the information is necessary to protect the health and safety of the student or other individuals.**¹

- “Articulable and significant threat” means that if a school official can explain why, based on all the information then available, he or she reasonably believes that a student poses a significant threat, such as a threat of substantial bodily harm, to any person, including the student, the University may disclose education records to any person whose knowledge of information from those records will assist in protecting a person from that threat.
- “Appropriate parties” include parents of the student; parents may be notified when there is a health or safety emergency involving their son or daughter.

In making a determination to disclose information, the University may take into account the totality of the circumstances pertaining to a threat to the safety or health of the student or other individuals. An emergency can be related to the threat of an actual, impending, or imminent emergency, such as a terrorist attack, a natural disaster, a campus shooting, or the outbreak of an epidemic such as e-coli. An emergency can also be a situation in which a student gives sufficient, cumulative warning signs that lead the school official to believe the student may harm himself at any moment.

The FERPA **recordkeeping requirements** require the University to record 1) the articulable and significant threat that formed the basis for the disclosure and 2) the parties to whom the information was disclosed. This record will demonstrate what circumstances led to the determination that a health or safety emergency existed and how the disclosure was justified. The record must be made within a reasonable period of time after the disclosure was made. The record must be maintained with the education records of the student for as long as the student’s education records are maintained. **After disclosing information under the FERPA health and safety exception, employee(s) must document the following information and forward the records to the dean of students.**

- Student’s name
- Name(s) of person(s) to whom the student posed a significant health or safety threat
- Description of the significant threat to health or safety
- Description of the circumstances and the information available (including relevant dates)
- Description of all the information that was disclosed
- Names(s) of person(s) to whom the information was disclosed (person(s) whose knowledge of the information would have assisted in protecting a person or persons from the threat; or student’s parents)
- Date(s) disclosure was made
- Name(s) of CU employee(s) who determined a health and safety emergency existed
- Name(s) of CU employee(s) who disclosed the information
- Date the record of disclosure was made

¹Note: The FERPA health and safety requirements do not apply to disclosures to a Clemson University employee with a legitimate educational interest in the information. Information from education records may be disclosed to University employee if the information is necessary for that employee to perform work appropriate to his or her position.

GRADUATE SCHOOL

POLICY STUDIES

Doctor of Philosophy Certificate

Clemson University offers graduate studies leading to a PhD degree and a Certificate in Policy Studies. Graduate work in policy studies enables a student to attain a high degree of specialized competence in policy analysis and to secure a mastery of policy research, emphasizing quantitative and economic skills. Government, industry, public policy “think tanks,” and other policy research organizations, nonprofit organizations, and universities offer challenging opportunities in policy analysis, issue development, education, and related areas for persons with advanced training.

The program emphasizes quantitative, economic, and political organization, as well as other social science skills in the analysis and development of policy. Fundamental and rigorous quantitative and analytical skills for effective policy analysis are developed through core courses in political economy for public policy, ethics, statistical methods for policy research, demographic projections and spatial analysis, policy analysis and political choice, organizational theory and management, applied economics, and a policy analysis workshop. PhD students also select a concentration in Agricultural Policy, Environmental and Natural Resource Policy, Rural and Economic Development Policy, or Science and Technology. Flexibility is also achieved through enrichment, electives, leadership development courses, and the selection of a PhD dissertation topic. The program consists of a minimum of 63 credit hours beyond the bachelor's degree, of which up to 24 credits may be drawn from master's degree and other postgraduate work. There is no foreign language requirement for the PhD degree in Policy Studies.

The graduate program in Policy Studies also offers students enrolled in related master's and doctoral programs the opportunity to gain competence in and understanding of policy analysis. Depending on students' backgrounds and academic preparation, they may supplement their primary master's coursework with a Certificate in Policy Studies. The Certificate in Policy Studies is designed to equip students with a set of explicit public policy research and analytical skills to augment their preparation in a traditional master's program. The certificate program involves 12 credit hours of coursework.

The faculty in Policy Studies encourages applications for the PhD program from recipients of a master's degree who wish to acquire policy research and analytical skills in economic development, agriculture, natural resource allocation, rural development, small town and community development, tourism development, environmental issues, land use, infrastructure, public finance, growth management, and science and technology. Master's-level students with similar interests are encouraged to enhance their graduate studies with a Certificate in Policy Studies.

The faculty encourages applications from students who have backgrounds that will facilitate an interdisciplinary course of study. In many cases, students may be admitted to full graduate status in the PhD program without prerequisites other than those required of all graduate students.

COLLEGE OF AGRICULTURE, FORESTRY AND LIFE SCIENCES

The mission of the College of Agriculture, Forestry and Life Sciences is to provide teaching, research and service in agriculture, forestry and life sciences that will benefit the citizens of South Carolina and the nation. The College of Agriculture, Forestry and Life Sciences serves more than 3,800 graduate and undergraduate students.

The ability to understand and manipulate the molecular structure of biological systems, while at the same time understanding their practical management, offers immense potential to improve our world, whether it is to improve foods, building products, the environment, or our health. The College of Agriculture, Forestry and Life Sciences is using the same expertise to produce more food on less available land, grow better foods that will help prevent heart disease and fight breast cancer, package environmentally sound products, increase dairy production, increase timber production and develop businesses and promote a "green" society.

The College of Agriculture, Forestry and Life Sciences offers Masters and Doctoral degree programs in disciplines in agriculture, forestry and life sciences, from the fundamental to the applied. The Master of Agricultural Education and Master of Forest Resources professional degrees are awarded to those individuals whose interests lie outside a research-oriented profession. Combined BS/MS programs are available for Food Science, Biological Science/Bioengineering, Packaging Science and Wildlife and Fisheries Biology.

Cooperative programs with state, federal and private agencies allow students to extend their research off campus to the Greenwood Genetics Center, research and education centers spanning South Carolina, and state and national forests of the Savannah River Basin. Proximity to the Blue Ridge Mountains provides access to one of the most biologically diverse regions of the world.

AGRICULTURAL EDUCATION

Master of Agricultural Education

The Master of Agricultural Education is a professional degree designed to enhance the human resource skills in agriculture and education. The flexible program provides a core of planning, delivery, evaluation and administrative strategies while encouraging specialization in teacher education, adult and extension education, agricultural communications, youth development, or technology transfer. Graduates hold positions as agriculture teachers, extension agents, agricultural and environmental agency employees, as well as human resource development specialists in the agricultural industry.

Candidates for the degree are required to plan a program of study in consultation with the major advisor and graduate committee and complete a minimum of three credit hours in adult education, three hours in research methods and three hours in statistics; a minimum of 12 credit hours in the major field; and a minimum of six credit hours in an area of concentration outside the major field.

A minimum of 30 credit hours is required for the professional degree. At least one-half of these credit hours must be selected from courses numbered 700 or above. The student's program of study must be approved by the advisory committee.

Admission Requirements

Students must complete all University applications, submit undergraduate overall grade averages and GRE scores, participate in an interview with a department graduate committee, and submit a writing sample on a topic assigned by the interview committee. Most admitted applicants have a GPA of at least 3.0 and GRE scores of at least 150 verbal, 141 quantitative and 3.0 writing. Acceptance will be based on an evaluation involving all of the above as well as appropriate recommendations. Additional undergraduate coursework may be required for marginally qualified students, students without undergraduate Agricultural Education degrees, and those seeking teacher certification.

ANIMAL AND VETERINARY SCIENCES

Master of Science

Doctor of Philosophy

Applicants to the Animal and Veterinary Sciences programs should have a strong background in the animal, biological and physical sciences. Students with deficiencies in these sciences may be admitted provided they correct these deficiencies during the first year of the program of study.

MS students are required to complete coursework in an area of interest approved by their graduate advisory committee. MS students may select a thesis or non-thesis option. Students in the thesis option must complete a minimum of 30 hours of graduate coursework, including six credits of thesis research. Students in the non-thesis option must complete a minimum of 30 hours of coursework and a comprehensive oral examination.

The PhD degree program does not have formal coursework requirements, but it is recognized that students will have individual deficiencies; therefore, it is the responsibility of the student and major advisor, in consultation with the graduate advisory committee, to prescribe coursework to correct these deficiencies.

All students in Animal and Veterinary Sciences are required to complete AVS 8200. A dissertation is required.

Each student's program will include at least 30 credit hours beyond the master's degree or 60 hours beyond the bachelor's degree, including a minimum of 18 hours of dissertation research.

APPLIED ECONOMICS AND STATISTICS

Master of Science

The Master of Science program in Applied Economics and Statistics is jointly administered in cooperation with the College of Business and Behavioral Science. Graduate work in Applied Economics and Statistics enables students to add to their understanding of economic analysis, econometric methods, and statistical techniques. Our faculty place special emphasis on the economics of agricultural production and marketing, issues in agribusiness, economic development and analysis of government programs and policies. Both thesis and non-thesis options are available. The curriculum for both options includes recommended courses in applied economics and experimental statistics. Flexibility is achieved through choice of elective courses and, for the thesis option, in the selection of a master's thesis topic. There is no foreign language requirement.

The school encourages applications from students with baccalaureate degrees in Agricultural or Applied Economics, Economics, Statistics, Mathematics, in natural resource areas such as Forestry or Wildlife Biology, and other majors. For more information, see the program description under Economics, College of Business and Behavioral Science.

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Doctor of Philosophy

Enrollment in the Biochemistry and Molecular Biology program is open to students with appropriate degrees in agricultural, biological, or physical sciences or engineering. Entering students must have satisfactory academic records in mathematical, physical and biological sciences. Research activities include bioinformatics, functional genomics, microbial and plant biochemistry, molecular biology, proteins and signal transduction.

Degree Requirements

The PhD program requires GEN 8140, BCHM 8100, BCHM 8140 and BCHM 8050 during the student's first two years. In addition, PhD students are required to attend BCHM 8250 every semester they are enrolled, and must register for BCHM 8510 in the semester of their dissertation defense. Students beyond their first year are required to do one oral presentation every year in BCHM 8250.

A student's dissertation committee will determine whether the student should take courses in addition to the required courses.

A dissertation, consisting of 18 credits of doctoral research (BCHM 9910), exclusive of any research credits earned at the master's level, is required of PhD students. Successful completion of written and oral comprehensive examinations will admit doctoral students to candidacy for the PhD degree.

BIOLOGICAL SCIENCES

Master of Science

Doctor of Philosophy

The MS and PhD degree programs in Biological Sciences encompass a wide variety of disciplines in both plant and animal biology with three major emphasis areas: Ecology and Evolutionary Biology, Cell and Developmental Biology, and Comparative Organismal Biology.

Applicants to the graduate degree programs in Biological Sciences must have a bachelor's or master's degree and a background of training in biology. All students are expected to have completed inorganic and organic chemistry, physics, calculus, biology, plant and animal diversity, genetics, and evolutionary biology. Deficiencies (less than 18 hours total) may be remedied through appropriate coursework completed during the graduate program. Graduate credit is not normally awarded for remedial coursework. Students with more than 18 hours of deficiencies, including those with degrees outside of biology, are encouraged to contact the Department of Biological Sciences to discuss options for fulfilling coursework requirements in preparation for application to the MS and PhD programs.

Candidates for the MS degree must complete 30 hours of graduate credit, including 24 credits of coursework, six credits of thesis research, an acceptable thesis based on original research and satisfactory performance in a final oral examination.

Candidates for the PhD degree must complete written and oral comprehensive examinations, 18 credits of dissertation research, an acceptable dissertation based on original research and satisfactory performance in a final oral examination. Although there is no required coursework for the doctorate beyond the 18 credits of dissertation research, some graduate coursework emphasizing breadth and depth of knowledge in the life sciences is expected of each candidate. A total of 30 credit hours beyond the master's degree (or 60 hours beyond the bachelor's degree) is required for the doctoral degree.

Non-Thesis Option

The non-thesis option of the MS is designed specifically for K-12 teachers and others interested in biological sciences education. Candidates must complete a total of 30 semester hours of graduate coursework. At least 18 of the 30 hours must be at the 8000-level. All courses are offered online. A research proposal and project whose results are presented in written format is also a requirement. The scope of the research project is not as extensive as the thesis required in the traditional MS program; however, it is expected that students will conduct original scientific research and write a document of the caliber of a manuscript suitable for submission to a peer-reviewed journal. The student and the student's graduate committee will determine the subject of the research project.

Admission to the non-thesis option of the MS program requires a suitable undergraduate education, two letters of recommendation, a resume, and suitable GRE scores. (GRE scores are not required for teachers with one or more years of teaching experience.) Students do not need an undergraduate degree in biology to be considered for admission.

ENTOMOLOGY

Master of Science

Doctor of Philosophy

The Entomology graduate programs of the School of Agricultural, Forest and Environmental Sciences are dedicated to providing leadership in environmental entomology. Research programs fall into three emphasis areas: arthropod biodiversity, agricultural entomology, and urban entomology. Facilities of the South Carolina Experiment Station on campus and at four research and education centers located in various regions of the state are available for graduate student research. In addition to teaching and research laboratories, specialized facilities within the department include the Clemson University Arthropod Collection; laboratories for molecular genetics, tissue culture and analytical chemistry/toxicology; wet laboratories; controlled and ambient temperature insect-rearing facilities; a free-flight butterfly facility; and greenhouses. Candidates for the MS degree must complete a minimum of 30 hours of graduate credit, including six hours of research, and write a thesis. Candidates for the PhD degree must complete a minimum of 60 hours of graduate credit beyond the BS/BA degree and 30 beyond the MS degree, including 18 hours of dissertation research and write a dissertation. Candidates for both degrees must satisfy a set of core requirements, some of which may have been satisfied in a previous degree program.

ENVIRONMENTAL TOXICOLOGY

Master of Science

Doctor of Philosophy

The graduate program in Environmental Toxicology is an interdisciplinary program preparing students for careers in academia, private businesses or government agencies involved in environmental issues. Candidates enrolling in the M.S. and Ph.D. programs must meet all requirements for admission to the Graduate School and have an adequate background in the natural sciences, including organic chemistry, physics, calculus, biology, ecology, biochemistry, and physiology.

Candidates for the MS degree must complete 30 hours of graduate credit, including 24 credits of course work, six credits of thesis research, an acceptable thesis based on original research and satisfactory performance in a final oral examination. A core of required courses consists of EES 8430 or EES 8450, ETOX 6300, ETOX 6370, ETOX 8610 a graduate-level statistics course. At least one-half of the total course work must be at 8000-level.

Candidates for the PhD degree must complete written and oral comprehensive examinations, a minimum of 30 hours beyond the master's degree, including 18 credits of dissertation research, an acceptable dissertation based on original research and satisfactory performance in a final oral examination. In addition, a core of required courses, consisting of EES 8430 or EES 8450, ETOX 6300, ETOX 6370, ETOX 8610, a graduate-level statistics course, and 9 credit hours of appropriate graduate-level course work are required

FOOD, NUTRITION AND CULINARY SCIENCES

Master of Science

Detailed information is available from the Department of Food, Nutrition, and Packaging Sciences or at www.clemson.edu/fnps.

Admission Requirements

Students admitted to the MS program in Food, Nutrition and Culinary Sciences must meet the following criteria.

1. The Aptitude Test of the Graduate Record Examination (GRE General Test) must be taken by all applicants. A minimum total GRE score of 1000 on the two-component exam is required if taken prior to August 1, 2011 and 300 if taken on or after August 1, 2011. Applicant score on the analytical writing section of the GRE should be 4.0 or higher.
2. A strong background in food science; human nutrition; physical, chemical, or biological sciences; or engineering is highly desirable.
3. Proficiency in food science must be demonstrated by satisfactory completion of coursework in the following areas: food chemistry, food microbiology, food processing, and biochemistry. Background course requirements will normally be satisfied with completion of a BS degree in Food Science from an accredited institution. Students deficient in any of these areas will be required to complete coursework to fulfill these background course requirements.
4. Acceptance is based upon academic transcripts with a minimum undergraduate grade-point average of 3.0, three letters of recommendation, a statement of objectives and professional experience.
5. International students must have a minimum Test of English as a Foreign Language (TOEFL) score of 80. IELTS can be taken in lieu of TOEFL. Minimum score accepted on the IELTS is 6.5. International students must also submit documentation of adequate financial support for their studies.
6. An additional requirement for admission is identification of a research advisor prepared to accept the applicant as an advisee.

Financial Aid

A limited number of research assistantships are available from grant funds, with the student assisting in the research supported under the grant. This research often may be applicable to the thesis or dissertation. Interested applicants should contact individual faculty for research assistantships. Applicants whose files are completed prior to February 15, will be given preferential consideration for research assistantships offered beginning fall semester.

Transfer of Credits

With pre-approval, up to eight graduate credits may be transferred into the MS program. A grade of B or better is required in each course transferred.

Course Requirements—Thesis Option

A minimum of 24 credit hours of coursework and six credit hours of thesis research (FDSC 8910) is required for the MS degree. Only 6000-level courses and higher may be used for graduate credit and at least one-half of the 24 hours of coursework must be at the 8000 level or higher.

The following courses are required: EXST 8010 or equivalent, FDSC 8510 (one-credit hour seminar each year), FDSC 8100, NUTR 8030, 10 credit hours of advanced-level courses (may include courses in food science or in areas such as chemistry, nutrition, biochemistry, animal and veterinary sciences, microbiology, statistics, or cell biology, as required by the student's Graduate Advisory Committee), and six credit hours of thesis research (FDSC 8910).

Course Requirements—Non-thesis Option

A minimum of 30 hours of coursework as outlined below and a comprehensive, two-day final examination is required for the MS degree. The final examination consists of one day of core material and one day of content selected from departmental courses. Details may be found in the graduate handbook.

The following core courses are required: EXST 8010 or EDF 7780; FDSC 8100; and NUTR 8030.

Students select three out of the six following courses: FDSC 8110, 8120, 8150, NUTR 8040, 8050, 8070.

Students select eight to ten additional credit hours from 6000-level or higher courses with approval of the student's graduate committee.

In addition, for both the thesis and non-thesis options, a minimum grade-point average of 3.0 is required to maintain good academic standing and for graduation.

Combined BS in Food Science/ MS in Food, Nutrition and Culinary Sciences

Under this plan, students may reduce the time necessary to earn both degrees by applying graduate credits to both undergraduate and graduate program requirements. Enrollment guidelines and procedures can be found in the *Undergraduate Announcements*. Consult the Department of Food, Nutrition and Packaging Sciences for details.

FOOD TECHNOLOGY

Doctor of Philosophy

Students admitted to the PhD program in Food Technology must meet the following criteria.

1. The Aptitude Test of the Graduate Record Examination (GRE General Test) must be taken by all applicants. Most successful students have a minimum GRE score of 300 (combined and quantitative) and 4.0 on the written section.
2. A strong background in food science; human nutrition; physical, chemical, or biological sciences; or engineering is highly desirable.
3. Proficiency in food science must be demonstrated by satisfactory completion of coursework in the following areas: food chemistry, food microbiology, food processing, and biochemistry. Background course requirements will normally be satisfied with completion of a BS degree in Food Science from an accredited institution. Students deficient in any of these areas will be required to complete coursework to fulfill these background course requirements.

4. Acceptance is based upon academic transcripts with a minimum undergraduate grade-point average of 3.0, three letters of recommendation, a statement of objectives and professional experience.

5. International students must have a minimum Test of English as a Foreign Language (TOEFL) score of 80. IELTS can be taken in lieu of TOEFL. Minimum score accepted on the IELTS is 6.5. International students must also submit documentation of adequate financial support for their studies.

6. An additional requirement for admission is identification of a research advisor prepared to accept the applicant as an advisee.

A limited number of research assistantships are available from grant funds, with the student assisting in the research supported under the grant. This research often may be applicable to the thesis or dissertation. Interested applicants should contact individual faculty for research assistantships. Applicants whose files are completed prior to February 15, will be given preferential consideration for research assistantships offered beginning fall semester.

There are no set course requirements for the doctorate in Food Technology. Candidates for the PhD degree must complete a minimum of 30 hours beyond the master's degree, including at least 18 hours of dissertation research, in addition to writing a dissertation. It is expected that each PhD graduate will have a comprehensive understanding of the principles of food science with an expanded knowledge covering their focused research area. The PhD candidate's advisory committee will have final approval on all coursework. PhD candidates must pass a comprehensive examination comprised of written and oral portions, given by the PhD candidate's advisory committee. The successful student must also write and defend a dissertation to the satisfaction of the advisory committee. Dissertations usually contain a review of the literature and a detailed description of research in a scientific publication format. PhD students should expect to publish a minimum of two refereed research manuscripts from their dissertations.

FOREST RESOURCES

Master of Forest Resources

Master of Science

Doctor of Philosophy

Enrollment in the Master of Forest Resources and Master of Science programs is open to students who have earned a baccalaureate degree in forestry, forest products, or a related field. A master's degree, preferably in a forestry discipline, is required for enrollment in the Doctor of Philosophy program. The candidate may be required to satisfy undergraduate deficiencies before being admitted to full status.

The Master of Forest Resources, a non-thesis degree, requires a minimum of 36 credit hours of graduate coursework with at least 18 of the required hours selected from courses numbered 7000 or above.

A formal thesis is required for the MS and PhD degrees. The MS degree requires a minimum of 24 credit hours of coursework and six hours of research. The PhD degree requires a minimum of 16 credit hours of coursework and 18 hours of research beyond the student's master's degree coursework. For both degrees, one-half of the semester hours must be selected from courses numbered 8000 and above.

GENETICS

Doctor of Philosophy

The PhD degree in Genetics is administered by the Department of Genetics and Biochemistry. Research activities include biochemical, biometrical, molecular and population genetics, as well as bioinformatics, cytogenetics, and structural and functional genomics through arrangements with other participating disciplines and with the Greenwood Genetics Center.

Degree Requirements

The PhD program requires GEN 8140, BCHM 8100, BCHM 8140 and BCHM 8050 during the student's first two years. In addition, PhD students are required to attend BCHM 8250 every semester they are enrolled, and must register for GEN 8510 in the semester of their dissertation defense. Students beyond their first year are required to do one oral presentation every year in GEN 8250.

A student's dissertation committee will determine whether the student should take courses in addition to the required courses.

A dissertation, consisting of 18 credits of doctoral research (GEN 9910), exclusive of any research credits earned at the master's level, is required of PhD students. Successful completion of written and oral comprehensive examinations will admit doctoral students to candidacy for the PhD degree.

MICROBIOLOGY

Master of Science

Doctor of Philosophy

The Department of Biological Sciences administers the MS and PhD degree programs in Microbiology. The Microbiology graduate programs includes a wide variety of disciplines with three major emphasis areas: Cellular and Physiological Microbiology, Microbial Genetics and Molecular Microbiology, and Environmental Microbiology.

Applicants to the graduate degree programs in Microbiology must have a bachelor's or master's degree and a background of training in biology (botany, microbiology, or zoology), chemistry, or in one of the agricultural sciences. Undergraduate work in bacteriology or microbiology is desirable but not necessary. All students are expected to have completed inorganic and organic chemistry, physics, calculus, general biology and genetics. Deficiencies (less than 18 hours total) may be remedied through appropriate coursework completed during the graduate program. Graduate credit is not normally awarded for remedial coursework. Students with more than 18 hours of deficiencies including those with degrees outside of biology, chemistry, or agricultural sciences are

encouraged to contact the Department of Biological Sciences to discuss options for fulfilling coursework requirements in preparation for application to the MS and PhD programs.

Candidates for the MS degree must complete 30 hours of graduate credit, including 24 credits of coursework, six credits of thesis research, an acceptable thesis based on original research, and satisfactory performance in a final oral examination. The 30 credits of graduate coursework will include courses from each of the following areas: cellular and physiological microbiology, microbial genetics and molecular microbiology, and environmental microbiology.

Candidates for the PhD program must complete written and oral comprehensive examinations, 18 credits of dissertation research, an acceptable dissertation based on original research, and satisfactory performance in a final oral examination. Although there is no required number of credits of coursework for the doctorate beyond the 18 credits of dissertation research, a core of graduate coursework including courses from each of the following areas is expected of each candidate: cellular and physiological microbiology, microbial genetics and molecular microbiology, and environmental microbiology.

PACKAGING SCIENCE

Master of Science

The MS degree program in Packaging Science prepares graduates to work independently in the research, development and application of new packaging materials and processes. Students may be accepted with backgrounds relating to chemistry, physics, mathematics, biology, or engineering. Students with backgrounds in business or graphic communications or other disciplines may also be accepted after completing courses equivalent to the basic science and mathematics courses in the department's undergraduate curriculum. Each degree program is designed individually to augment the student's background to provide a broad understanding of packaging science and specialized knowledge in the area of the student's research.

The MS degree in Packaging Science requires 30 hours of coursework, six of which are thesis research, and the completion of an acceptable MS thesis. In addition to PKSC 8910, students register for at least one credit of PKSC 8510.

Competency in distribution, transportation and engineering technology; food and health care packaging; materials; and packaging design and graphics is expected.

Combined Bachelor of Science/ Master of Science Degree Program

The Department of Food, Nutrition, and Packaging Sciences also offers an accelerated five-year combined bachelor's/master's program that allows students to count up to 12 hours of graduate credit toward both the BS degree in Packaging Science and the MS degree in Packaging Science. Details are available from the Department of Food, Nutrition, and Packaging Sciences or at www.clemson.edu/fnps.

PLANT AND ENVIRONMENTAL SCIENCES

Master of Science

Doctor of Philosophy

The degree programs in Plant and Environmental Sciences are offered through an interdepartmental program comprised of faculty from disciplines including biological sciences, botany, crop science, entomology, genetics, environmental horticulture, plant pathology, plant physiology and soil science.

Candidates for the program in Plant and Environmental Sciences should have a strong undergraduate background in the biological, agricultural and/or physical sciences as appropriate to their focus areas. Undergraduate curricula that may provide this background are botany, biology, chemistry, or one of the agricultural plant and soil environmental sciences such as agronomy, forest resources, or horticulture. Students with nontraditional backgrounds may need to complete some relevant undergraduate courses to supplement the graduate program.

Each student's degree program is tailored to his/her professional goals and is guided by an advisor and graduate committee with expertise appropriate to the student's area of specialization. All graduate students must select an advisor before admission.

Candidates for the MS degree must complete 24 credit hours of coursework and six hours of research, and they must present and defend a thesis based on original research. MS students who plan nonresearch-related careers in public gardening, landscape design, extension, consulting, or agribusiness may complete 30 credit hours of coursework and undertake a professional development/public service project option in lieu of thesis-related research. Interdisciplinary studies in plant health and integrated pest management are also available under this option.

A dissertation based on original research is required for the PhD degree. The doctoral degree requires at least 30 credit hours beyond the master's degree and 60 hours beyond the bachelor's degree.

Individual plans of study include courses from the following areas: biochemistry, biological sciences, botany, crop and soil environmental science, entomology, genetics, horticulture and plant pathology as well as plant and environmental sciences.

WILDLIFE AND FISHERIES BIOLOGY

Master of Science

Doctor of Philosophy

Those who are interested in pursuing a graduate degree in Wildlife and Fisheries Biology should have sound undergraduate training in the biological or related sciences. Initially, applicants should contact the faculty members whose research interests are closest to their own. Programs of study are designed to emphasize relationships between wild animals and their changing environments and production of aquatic organisms.

Admission to either the master's program or the doctoral program requires acceptance by the University and the Graduate Student Admission Committee of Wildlife and Fisheries Biology. This committee will base its acceptance recommendation to the Graduate Admissions Office on previous coursework, GRE scores, letters of recommendation, undergraduate background and current research interests. Students are required to have completed a bachelor's degree, preferably in a natural science, with a minimum of 30 credit hours in natural sciences. In addition, an MS in Natural Resource Biology or related area usually is preferred, but not required, for acceptance into the doctoral program. Students accepted without the appropriate course background will be required to make up these deficiencies as outlined by the Graduate Student Admission Committee and consistent with University admission policies.

Students seeking the MS degree in Wildlife and Fisheries Biology may select a thesis or a non-thesis option. Requirements for the thesis option include a minimum of 24 credit hours of coursework, six hours of thesis research (WFB 8910), an acceptable thesis based on original research, and satisfactory performance on a final oral examination/thesis defense. Additional coursework usually includes subjects such as experimental statistics, biological sciences and forestry. Thesis research areas include conservation biology, wildlife management, endangered species, freshwater fisheries science and wildlife toxicology.

The non-thesis option is designed primarily for students with substantial experience in natural resources who wish to enhance their professional degree skills. Students in the non-thesis option are not allowed to transfer to the thesis option without approval by vote of the faculty of the Department of Forestry and Natural Resources. Candidates must complete a minimum of 30 credit hours of approved courses, including three to six hours of WFB 8630, which result in a broad, well informed and integrated exposure to natural resources management and environmental issues. The non-thesis project must be substantial in nature and result in an extended report addressing a major problem or issue relevant to the field of wildlife management, fisheries management, natural resources or environmental studies. The scope of the project should be consistent with the credit hours awarded for the project. A maximum of three credit hours from independent studies (WFB 8610 or similar courses) may be applied toward the coursework requirement. The graduate advisory committee ensures appropriate elective course selection and may require a student to complete more than 24 credits if deficiencies in the student's background exist or if additional courses are required for professional certification. Students are also required to pass a final oral examination.

The PhD degree program requires a minimum of 30 credit hours beyond the student's master's degree coursework or 60 credit hours beyond the student's bachelor's degree coursework. While the PhD program has no specific credit hour requirement beyond that, the student's advisory committee will insist on a rigorous and appropriate program of study and research. Students are required to take, or have taken, at least two semesters of graduate statistics and two semesters of 8000-level seminars in fisheries and wildlife science or related areas. Students must also

have at least one semester of professional experience, which will be evaluated by the advisory committee. Examples of appropriate professional experience are teaching assistantships, internships or cooperative study program participation, or natural resource agency employment. Other course requirements will be identified by the student's advisory committee and will include specific courses according to the elected emphasis area: fisheries biology, wildlife biology, or conservation biology.

Research opportunities are enhanced by cooperative programs with the S.C. Department of Natural Resources, U.S. Geological Survey Cooperative Research Unit at Clemson, Savannah River Ecology Laboratory, Webb Wildlife Research Center, and Waddell Mariculture Center. The department also is associated with the National Council for Air and Stream Improvement Eastern Wildlife Program. The graduate program is accredited by the Southeastern Section of the Wildlife Society.

Combined BS/MS in Wildlife and Fisheries Biology

Under this plan, students may reduce the time necessary to earn both degrees by applying graduate credits to both undergraduate and graduate program requirements. Students should obtain specific requirements for the dual degree from the School of Agricultural, Forest and Environmental Sciences as early as possible in their undergraduate program to ensure that all prerequisites are met. Enrollment guidelines and procedures can be found in the *Undergraduate Announcements*.

COLLEGE OF ARCHITECTURE, ARTS AND HUMANITIES

The College of Architecture, Arts and Humanities offers graduate programs in three schools: the School of Design and Building, the School of the Arts, and the School of Humanities. Advanced degrees are offered in Architecture; City and Regional Planning; Communication, Technology and Society; Construction Science and Management; Digital Production Arts; English; Historic Preservation; History; Landscape Architecture; Planning, Design and the Built Environment; Professional Communication; Real Estate Development; Rhetorics, Communication and Information Design; and Visual Arts.

Courses are offered in art and architectural history, communication studies, geography, languages, literature, performing arts, philosophy, religion and women's studies to provide electives for students in other areas.

Graduate students in the School of Design and Building and the School of the Arts have the opportunity to study at the Charles E. Daniel Center for Building Research and Urban Studies in Genoa, Italy, or the Clemson Architectural Center in Charleston, SC. The Genoa and Charleston programs offer opportunities for international and/or urban study to augment on-campus work. Lee Hall, the on-campus home of the School of Design and Building, as well as the Department of Art, are designed to promote collaboration between the various professional programs within Lee Hall, allow students to interact with faculty and students from related disciplines addressing contemporary issues of design, planning, development and construction. Issues of sustainability and green building are among the areas of particular interest. Faculty research activities are currently funded by the National Science Foundation, National Institutes of Health, National Oceanic and Atmospheric Administration, USEPA, Department of Transportation and Department of Defence.

The School of Humanities houses programs leading to the Master of Arts in Communication, Technology and Society; English; History; and Professional Communication; and the Doctor of Philosophy in Rhetorics, Communication and Information Design. The school also offers a certificate program in Health Communication. Faculty have been recipients of grants from agencies and foundations, such as the National Endowment for the Arts, the National Endowment for the Humanities, the John Simon Guggenheim Memorial Foundation, and the Bingham Trust. They have also held Fulbright Senior Lectureships and Research Awards in many countries.

ARCHITECTURE Master of Architecture Master of Science

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture (B. Arch.), the Master of Architecture (M. Arch.), and the Doctor of Architecture (D. Arch.) A program may be granted a 6-year, 3-year or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

Clemson University, College of Architecture, Arts and Humanities, School of Architecture, offers the following NAAB-accredited degree programs:

Three-Year Master of Architecture degree tracks:

M. Arch. I (non-architecture Bachelor or Master degree + 90 credit hours)

M. Arch. I + Health Concentration (non-architecture Bachelor or Master degree + 91 credit hours)

Two-Year Master of Architecture degree tracks:

M. Arch. II (pre-professional architecture degree + 60 credit hours)

M. Arch. II + Health Concentration (pre-professional architecture degree + 61 credit hours)

Admission to the M. Arch. program, and any advanced placement, is based on an estimation of the applicant's ability to respond effectively to the intellectual rigor and creative challenge integral to graduate architecture study by an admissions committee of graduate faculty. The applicant's potential is measured in part by demonstrated proficiency in prior academic work, Graduate Record Examination (GRE) test scores, a portfolio of design work (required of all applicants), and other application requirements. More detailed information is available on the School of Architecture website.

The Master of Architecture program develops proficiency in responding to contemporary architectural issues through a range of practical and theoretical knowledge, while providing opportunities for creatively challenging the limits of the profession. Emphasis is on design, accompanied by complementary coursework of a professional focus, as well as elective subjects. Complex studio design projects stress social awareness and contextual fit and are responsive to all aspects of the architectural process.

The Master of Architecture degree requires a minimum of two academic years. Degree candidates may elect a concentration of study in architecture or architecture and health. The graduate faculty reviews each student each semester of the first year to determine if his/her performance is acceptable to continue in the program.

Architecture + Health Concentration

Within the framework of the Master of Architecture degree, the Architecture + Health Concentration includes seminar courses and studio work appropriate for both a general professional degree and a concentration in Architecture + Health. The intent is to develop the generalist-specialist—graduates who can creatively work in both modes. This concentration includes both the study of health facility design and the study of relationships between architectural settings and their impact on human health and well-being. The primary purpose of the concentration is to study how architectural environments impact health and how to create architectural settings that support health and well-being of individuals and larger populations.

Studio design projects and courses examine these relationships for architectural settings and conditions ranging from entire communities and health care systems to specific projects and individual interior or exterior spaces. The studio emphasizes design excellence within the framework of rigorous and complex demands found in the practice of health care architecture. Student work is expected to stand up critically at all levels of architectural consideration.

The Architecture + Health Concentration is demanding in the scope of its professional studies, with most of the coursework designated for specific areas of learning. Students may take advantage of the same off-campus programs available to students in the Architecture Concentration during their first semester of study. Given the number of required courses, students may opt for a five-semester plan of study beginning in the spring semester. The thesis or project, developed during the final year, normally deals with particular architectural topics as they relate to health and/or health facility design.

Certificate Programs

The School of Architecture offers two certificate programs to enrolled M. Arch. and M.S. in Architecture students. The certificate in Digital Ecologies (also open to PDBE PhD students) cultivates design research and design practices responsive to an increasingly digital society. The certificate in Architecture + CommunityBUILD addresses issues of social justice and community sustainability through community engagement and appropriate design solutions. More information is available on the School of Architecture website.

Off-Campus Study

M. Arch. I and M. Arch. II students are encouraged to study at one of our off-campus centers for one or two semesters. More information is available on the School of Architecture website.

Master of Science Program

The Master of Science degree in Architecture is a post-professional degree program that offers the opportunity to achieve advanced learning within the discipline of architecture and to undertake research responsive to increasingly complex challenges attendant to the built environment. This is accomplished through a foundation of coursework, accompanied by directed studies within a selected area, and followed by the critical examination of a singular aspect of architecture in a research thesis.

Admission to the MS program is available to students who have a first professional degree in architecture and who possess the intellectual mettle and dedication necessary to respond successfully to the rigor of advanced study and independent research. This is measured by academic proficiency in prior work, a well-reasoned plan of advanced study and GRE general test scores. Information concerning application procedures and requirements is available from the School of Architecture.

The coursework and directed studies required of the Master of Science program may be completed in one academic year, after which a variable period of time is dedicated to the research thesis. Degree candidates work within one of the following areas: architecture and health care facilities, environmental issues in architecture, architecture and human perception, or theory and philosophy of architecture. A plan of study is determined in consultation with the major advisor who, along with the advisory committee, periodically reviews the student's work and evaluates the research thesis. Requirements for the MS degree consist of 24 credit hours of combined coursework and directed studies with a minimum grade-point average of 3.0 and the acceptance of a six-hour research thesis.

CITY AND REGIONAL PLANNING

Master of City and Regional Planning

The two-year Master of City and Regional Planning program is a professional degree emphasizing applied study in preparing tomorrow's leaders for planning and developing the nation's towns, cities and regions. The curriculum emphasizes applied study preparing for the challenge of planning vibrant and sustainable communities. Graduates are well-equipped for careers in private sector planning and development, as well as public sector planning and administration. The nationally accredited program began in 1968 and has more than 500 graduates.

The program emphasizes sustainable land development, applying appropriate technology and recognizing the balance of physical, economic, financial, social and policy dimensions of planning. The program has a professional application focus mainly concerned with providing a solid planning education to qualified students, primarily to meet the needs of South Carolina, the southeastern region and the nation, but also with a strong awareness of global and international planning issues. The generalist approach is employed with the flexibility for specialization in four areas: environmental planning, GIS/land use planning, transportation planning, and housing/community development/urban design. A

substantive core emphasizes the general framework, theories, methods and applications of the planning process. Strong ties with the professional community reinforce the professional application focus.

Students come from a variety of undergraduate majors and professional backgrounds—primarily liberal arts, the social sciences, environmental science, business, management and design—and from many states and several countries. The MCRP program typically has annual classes of approximately 15 students, providing the opportunity for extensive faculty involvement in teaching, research and public service.

While the curriculum covers theory and policy issues, the principal focus emphasizes the applied skills students need to enter the job market as professional planners and to evolve as leaders in the field. Classes use real-world situations for analysis and for the application of planning skills in dealing with land use planning, development and issues of the built and natural environment.

Planning students are equipped to meet opportunities facing communities in many creative ways. Many first-year students work two days per week as department assistants for professors or in planning related entities. Students typically work full time as interns in planning or development organizations during the summer. During their second year, most students work two days a week with a public, private or nonprofit entity as student public service assistants (PSA). This allows them to gain additional professional experience.

Assistantships provide significant tuition reduction. Students are actively involved in Clemson's Planning Student Organization of the American Planning Association (APA) and the South Carolina APA (SCAPA).

Clemson's graduates have been successful in the public, private and nonprofit sectors, attaining key positions in traditional planning agencies, development groups, nonprofit organizations and private consulting firms. This practical, applied program is recognized throughout the region for its outstanding graduates. Most alumni of the program serve as agency directors, department heads and staff planners at the local, regional and state levels. Some graduates work as generalists while others are specialists in GIS, housing and community development, environmental and coastal planning, historic preservation, transportation planning, or economic development. A growing number are employed in the private sector as planning or urban design consultants, developers, and market research or environmental analysts.

Admission Requirements

1. A bachelor's degree from an accredited college or university
2. A satisfactory academic record, particularly in the last two years of undergraduate work
3. An on-campus interview (highly recommended)
4. Three letters of recommendation with at least two from current or former professors
5. Completion of the Graduate Record Examination
6. International applicants must submit TOEFL scores or IELTS.

7. A personal statement of objectives, briefly describing (in one to two pages) the applicant's interest in planning in general and Clemson's program in particular

Courses in statistics and economics are highly recommended.

Requirements for Degree Candidacy

The two-year Master of City and Regional Planning degree requires a minimum of 54 credit hours. The program contains a 28-credit core curriculum, a one-credit summer internship, 15–18 credit hours of approved concentration/elective courses, and 7–10 hours of research and terminal project or thesis. The core courses include planning and substantive theory, analytical methods, implementation techniques and applications. The concentration area allows the student to develop further expertise in a particular area, if desired. A summer internship between the first and second years requires ten weeks of supervised professional employment for one credit. If approved, students may take additional coursework in lieu of the internship. An oral examination is required to present and defend the results of the terminal project or thesis.

Requirements for Awarding of a Degree

Thesis Option

1. A minimum of 54 hours of coursework with a B average in the student's prescribed professional curriculum, including the thesis, is required.
2. A ten-credit-hour planning thesis must be completed satisfactorily. Only those students who have been approved by the Planning faculty are permitted this option.
3. The final oral examination requires satisfactory answers to questions concerning the student's thesis and concentration area.

Non-thesis Option

1. A minimum of 54 hours of coursework with a B average in the student's prescribed professional curriculum is required.
2. An approved seven-credit-hour terminal project sequence must be completed satisfactorily.
3. The final oral examination requires satisfactory answers to questions concerning the student's terminal project and concentration area.

COMMUNICATION, TECHNOLOGY AND SOCIETY

Master of Arts

The Master of Arts in Communication, Technology and Society examines how people use technology to pursue long-term communication goals, including interpersonal, group, identity, and community relations, decision-making, virtual organizing, and health, political, and social movement campaigns. The program emphasizes the impacts and interconnections of communication technologies in society and culture from the full range of theoretical and methodological approaches. Graduates are prepared to enter teaching, business, politics, or social organizing as communication practitioners with expertise in a variety of fields, directly impacting economic

development in the region and across the nation, or to continue their education through the doctoral level at major research universities.

Departmental faculty are committed to providing students with opportunities for academic and professional development and believe that individuals continue to develop their expertise throughout their careers. The MA program provides a variety of opportunities to engage in scholarly and professional development activities outside the classroom, including participation in colloquia offered by communication scholars, professional workshops, internships, applied projects, and study abroad. Students are encouraged to become active members of international, national, regional, and state academic and professional associations, and to participate in as many of these development activities as possible while at Clemson in order to build network contacts in the communication discipline before graduation.

Certification/Employment

Most full-time graduate students are awarded assistantships. Students are automatically considered for an assistantship when applying to the program unless they request otherwise. For example, students may not wish to be considered for an assistantship if they plan to pursue the degree part-time while continuing to work full-time.

Funding opportunities are available to approximately eight new graduate students per year in the form of teaching and research assistantships. Assistantships provide a generous tuition waiver as well as a stipend, and are awarded competitively by the graduate committee. A variety of opportunities are available for students to grow as teachers, scholars, and emerging professionals in the discipline. Graduate students typically assist with the delivery of basic undergraduate courses and assist faculty members with research.

Admission Requirements and Application Process

The Department of Communication Studies welcomes applications from students and professionals who want to further their knowledge and skills in communication studies. Priority for admission and assistantship funding is given to applicants who apply by February 1 for the fall semester. However, applications may be reviewed after the deadline until all spaces are full. Students begin the program in the fall semester. Spring admission is only for part-time, full-pay students. Application deadline is September 1.

The following credentials are preferred, though the entire application is considered holistically: bachelor's degree from an accredited college or university; GPA of 3.0 or better on a 4.0 scale; scores of 153/144/4.0 or better on the GRE (verbal/quantitative/writing); TOEFL scores of 600 or better for the paper exam or 267 or better for the online exam (for non-native English language speakers only); strong writing skills as demonstrated through a writing sample and curriculum vitae; and focused reasons for pursuing a master's degree in communication, technology, and society as demonstrated in curriculum vitae and statement of purpose.

Applicants should complete Clemson University's online Application for graduate admission and submit the following documents to the Office of Graduate Admissions: official GRE scores from

ETS; official TOEFL/IELTS scores (international students); official college or university transcripts; and three letters of recommendation from teachers or supervisors addressing the applicant's preparation for graduate school. Applicants should email the following documents to Director of Graduate Studies, dscott3@g.clemson.edu: Personal statement of interest in and suitability for the program, resume/CV, and a sample of scholarly writing.

Financial Aid

A number of graduate assistantships are offered to students each year based on merit in the form of stipends and the additional benefit of tuition remission. Students must be enrolled in a minimum of nine credit hours per semester to qualify for a graduate assistantship and must work 10 hours a week as a teaching or research assistant or perform other tasks assigned by the school.

Degree Requirements

Students may select the thesis option or the comprehensive exam option. In either case, students must complete a minimum of 30 credit hours, including COMM 8010, 8020, 8030, 8100 and 8110; a minimum of 18 credits in COMM courses at the 8000 level; and a minimum of six credits in COMM or a relevant field other than COMM selected in consultation with the student's advisor. Up to nine credit hours of thesis work may be applied to the coursework requirements. The number of elective courses selected in a specialty area depends on which option a student selects. After students complete all required coursework, they begin work on a thesis or preparing for the comprehensive exams.

Students selecting the thesis option complete and publicly defend a project representing a significant contribution to the body of knowledge regarding the communication phenomenon that is the focus of the thesis project. A thesis committee is selected in consultation between the student and his/her advisor and is comprised of faculty from the Department of Communication Studies, but may also include faculty representing associated disciplines on the Clemson campus.

Students selecting the comprehensive exam option are assessed in their knowledge in several areas, such as the history and distinguishing characteristics of the communication discipline, relevant communication theory, the range of research methods used in communication research, communication ethics as they apply to communication mediated by technology, how communication mediated by technology may be used to pursue long-term goals in communication (e.g., social movements, health, community, interpersonal, small group, organizational), the relations between communication technologies and social and cultural identities and institutions, and material representative of the student's identified area of emphasis. The exam committee is selected in consultation between the student and his/her advisor and is comprised of faculty from the Department of Communication Studies, but may also include faculty representing associated disciplines on the Clemson campus.

Additional information about the MS in Communication, Technology and Society is available at <http://www.clemson.edu/caah/communication/graduate/index.html>.

Health Communication Certificate

An interdisciplinary Health Communication Certificate (HCC) is offered for Clemson graduate students and practicing health professionals with or currently pursuing graduate degrees in Nursing, Health Sciences, or other fields. This nine credit hour program focuses on doctor-patient interaction and public health campaigns for individuals, families, caregivers, and relationships. Students come from health industries, Communication Studies, Educational Leadership, Counseling, Marketing, Journalism, Microbiology, and other areas. The program offers you the ability to develop communication skills for academic, pharmaceutical, scientific, medical and/or health industry careers. It especially targets jobs in hospital systems, HMOs, clinics, CDC and other local, national and international health organizations.

Unlike other programs in health communication, this program is geared toward the technological skills more applicable to today's health industry. The program can be customized to individual student needs, whether they be centered on technological skills available through the HCC program or targeted for those who already have technical skills in health content and/or medical humanities.

Courses:

- COMM 8040 Fundamentals of Health Communication
- COMM 8060 Health Communication and Culture
- COMM 8070 Health Communication Campaign Planning and Evaluation
- Internships may also be applied toward course credit, pending approval

CONSTRUCTION SCIENCE AND MANAGEMENT

Master of Construction Science and Management

The Master of Construction Science and Management thesis-optional program provides students with a high level of skills and knowledge in the technical areas of construction project administration and control. Substantial emphasis is placed on advanced study in the field of business, in new and emerging techniques for construction project delivery systems, and in the administration of the construction firm.

The number of credit hours required for the MCSM degree varies according to each student's undergraduate degree. For those who have the required undergraduate skills and knowledge, the program consists of 36 credit hours. In cases where the candidate does not have the necessary prerequisite skills and knowledge, additional coursework beyond the 36 credit hours is required. Each application is evaluated as to the needed additional coursework. Up to 12 credits of approved recent graduate courses can be transferred into the program from another accredited institution.

This program is also available to off-campus students through the Office of Off-Campus, Distance and Continuing Education. Call 1-888-CLEMSON (1-888-253-6766) for more information.

Admission Requirements

1. A bachelor's degree in construction science, construction management, building construction, or related area is required. Applicants from other disciplines may be admitted but may be required to remedy any deficiencies in coursework to provide the prerequisite skills and knowledge for the program.

2. Acceptance must be granted by the Graduate School and the Department of Construction Science and Management. University acceptance is based on performance in previous undergraduate studies and a satisfactory score on the GRE. International students must also achieve a satisfactory score on the TOEFL/IELTS. In addition, acceptance by the department is based on performance in undergraduate studies, three letters of recommendation and acceptance by the department Graduate Admissions Committee.

3. Each applicant is required to have a minimum of one year of construction experience prior to being admitted to the program. Applicants must submit a detailed résumé of construction experience.

Requirements for Degree Candidacy

The Master of Construction Science and Management degree requires a minimum of 36 credit hours as detailed above. In cases where the candidate does not have the necessary undergraduate prerequisite skills and knowledge, additional coursework beyond the 36 semester hours may be required as noted above.

Requirements for Awarding of a Degree

Thesis Option:

1. A minimum of 36 semester credit hours of which the following courses are required: CSM 8520 (three credits); CSM 8910 (nine credits) and 12 additional credits selected from CSM 8600, 8610, 8620, 8630, 8640 or 8650. The remaining credits should be selected from the program's core and other master's degree courses (CSM 6650, 8810 and 8900), any approved graduate course offered by another department and/or CSM Chair approved graduate courses transferred in from another accredited university. Up to 12 credits may be transferred from other Clemson University approved institutions.

2. A thesis on a construction-related topic must be completed satisfactorily. Up to nine semester hours of this credit may be taken. Approval must be received from the student's advisor prior to selecting the thesis option.

3. Performance on a final oral examination relating to the student's thesis and program of study must be satisfactory.

Non-thesis Option

1. A minimum of 36 credit hours of which 12 must be from the department core (CSM 8600, 8610, 8620, 8630, 8640 and 8650) and CSM 8520 and 8890. The remaining credits should be selected from the program's core and other master's degree courses (CSM 6650, 8810 and 8900), any approved graduate course offered by another department and/or CSM Chair approved graduate course transferred in from another university. Up to 12 credits may be transferred from another Clemson University approved institution.

2. Performance on a written comprehensive examination covering the student's program of study must be satisfactory.

3. Performance on a final oral examination relating to the student's program of study must be satisfactory if the student has not performed satisfactorily on the written comprehensive exam.

DIGITAL PRODUCTION ARTS

Master of Fine Arts

The Digital Production Arts program is a professional degree program offered jointly with the College of Engineering and Science. See details in the College of Engineering and Science section.

ENGLISH

Master of Arts

The Master of Arts in English (MAE) offers a comprehensive approach to literary studies, incorporating exploration of literary texts and theory, examination of textuality and modes of publication, and a foundation in methods of research and scholarship. Through coursework, close interactions with faculty, and individual research projects, students infuse their broad understanding of the field of English studies with their own particular literary interests and concerns. The curriculum offers courses in theory, literary periods and genres, film, new media, creative writing, cultural studies, and rhetoric. The MAE program serves three types of students: those who plan to pursue graduate studies at the doctoral or terminal level; those aiming to teach in high schools, community colleges, and technical colleges; and those who want to enrich their background in English studies, develop research and writing skills, and continue their intellectual experience beyond the baccalaureate.

Preference for admission is given to applicants with 12 undergraduate credit hours or English or other background that prepares them for the program. Candidates for the MAE degree also must demonstrate proficiency in composition.

MAE students complete 31 credit hours of approved graduate courses, which may include up to six credits at the 6000 level. MAE students write a semester-long, potentially publishable thesis paper of 25-30 pages, developed from a seminar paper and presented in a public defense. All students must demonstrate a reading knowledge of an approved foreign language.

At the core of the MAE program is a 16-hour requirement, including ENGL 8000, 8100, 8910, and one course from each of the following groups:

Literature before 1800—ENGL 8050, 8080, 8110, 8200, or an appropriate course selected from 8020, 8030, 8310, or 8350

Literature after 1800—ENGL 8140, 8230, or an appropriate course selected from 8020, 8030, 8310, or 8350

In Preparation for the thesis, students must take multiple courses (at least two) in their area(s) of interest.

Students applying for second-year graduate teaching assistantships must take ENGL 8850.

Students interested in pursuing an MEd in Teaching and Learning with a concentration in English should consult the School of Education.

HISTORIC PRESERVATION

Master of Science

The Master of Science in Historic Preservation is a professional degree program in Charleston, SC that provides multidisciplinary training essential for careers in historic preservation, architectural conservation, and the effective management of the nation's cultural resources. It is a joint degree program with the College of Charleston and is administered through Clemson's Department of Planning, Development and Preservation. The program emphasizes the documentation, evaluation, interpretation, and conservation of historic structures, sites, and landscapes with the goal of developing appropriate sustainable preservation strategies for buildings, neighborhoods and communities. The program actively engages students in historic preservation projects in Charleston, a city widely recognized for its historic buildings and its innovative leadership in developing many of the tools applied by the modern preservation movement. Students conduct additional fieldwork and research at historic sites elsewhere in South Carolina and abroad. The size of the program is restricted to ensure focused research with the faculty. Coursework, much of it organized around studios, labs and field seminars, draws on Charleston's historic preservation specialists as well as distinguished visiting faculty and experts. Students are admitted into the program from a wide range of undergraduate disciplines. Submission of a portfolio with samples of work related to the built environment is encouraged.

Program Requirements

The 60-credit program is structured in sequential layers, beginning with an initial core semester devoted to the analysis and documentation of historic buildings and structures. The first semester is followed by an advanced semester consisting of laboratory and studio-based courses organized around acquisition of analytical skills in architectural conservation and completion of a significant preservation project. Summer professional internships with a local, regional or national historic preservation organization, such as the Historic American Building Survey and the National Trust for Historic Preservation, provide opportunities for the application of skills acquired during the first year. The second year focuses on acquisition of advanced skills and completion of a thesis. Students defend their thesis proposals at the beginning of the third semester. Thesis projects pursue original research questions and encourage students to acquire specific, advanced skills related to their area of focus in the discipline of historic preservation.

Certificate in Historic Preservation

The Certificate in Historic Preservation is designed to enhance a variety of other degree programs at Clemson through advanced studies in historic preservation. The 12-credit semester meets NCPE-mandated curriculum requirements. Prerequisites and further course requirements are determined by the student's degree program of study.

HISTORY

Master of Arts

Admission Requirements

Students are admitted to the graduate program by the Dean of the Graduate School upon recommendation of the department's graduate program coordinator and department chair. All applicants to the MA program in History must submit the following to the Graduate Admissions Office:

1. Final transcript(s) for the BA sent by the applicant's undergraduate school(s), showing a minimum grade-point average of 3.0 in history courses; and 2.5 in all courses during the last two undergraduate years
2. Three letters of reference, preferably from undergraduate professors
3. A sample term paper
4. A personal statement addressing the applicant's background in history, intended areas of specialization and reasons for applying
5. A completed University application form

Additionally, if the applicant has (1) a grade-point average less than 3.0 in the History major for the BA degree and/or (2) a BA degree, including the major and minor, in subject(s) other than history, he/she will be required to take a minimum of four upper-level undergraduate history courses at Clemson or at another accredited university or college and receive a grade of *B* or better in each course before admission to the program. The only exception to this course requirement shall be persons who demonstrate that, as a part of their BA degrees, they completed a minimum of four upper-level undergraduate history courses with a grade of *B* or better. Any exceptions to these regulations require the consent of the department's Graduate Committee.

Application Deadline

Applications for fall semester must be submitted no later than the previous February 20, and for spring semester no later than the previous November 1. Please note that consideration for assistantships begins in January and continues until all available slots are filled.

Requirements for Awarding of a Degree

The MA in History requires 30 credit hours in courses numbered 6000 or above divided as follows:

1. HIST 8810
2. HIST 8200 or 8720 and HIST 8900
3. A minimum of nine additional credit hours in courses numbered between 8000 and 8940, excluding HIST 8850, 8900, and 8910
4. A minimum of six elective credits in graduate courses selected with the approval of the director of the graduate program
5. A minimum of six credits in HIST 8910 (Master's Thesis Research), three of which should be taken in the second semester if enrolled full-time or within the first 18 credits in the program. Additionally, the student must write a thesis acceptable to the depart-

ment and must demonstrate reading knowledge of a foreign language. A final examination, which may be written, oral, or a combination of the two forms, is required of all candidates.

Students holding an assistantship in the Department of History who receive a grade lower than *B* in any graduate course may have their assistantships terminated.

LANDSCAPE ARCHITECTURE

Master of Landscape Architecture

The landscape architecture profession is broad and interdisciplinary. Practicing landscape architects work on a wide range of project types including, but not limited to, urban and community design, historic preservation, ecological restoration, parks and park systems, institutional landscapes, memorials, cemeteries, industrial site reclamations, golf courses, wilderness areas and trails, residential landscapes and gardens. The profession is both an art and a science. Successful landscape architects are creative professionals who hold an environmental imperative and a social conscience. They are also excellent facilitators, able to bring numerous disciplines and professions together to work on complex projects in the landscape.

Like other universities in the United States, Clemson offers two Master of Landscape Architecture (MLA) tracks—a first professional degree and a second professional degree. Research and study in those important topics of national and international consequence further ensure the marketability of Clemson's MLA graduates. Students come from a range of disciplines such as planning, history, English, biology, geology, geography, environmental science, various social or natural sciences, art, or other disciplines. Application requirements are available at www.clemson.edu/caah/landscapearchitecture/

First Professional MLA

The three-year first professional degree is designed to provide students with a professional education and also an opportunity for research and/or in-depth project work. Because students hold bachelor's degrees from an array of backgrounds, it is necessary for them to gain landscape architectural skills. Those proficiency courses are also required for professional accreditation. In the first years of the program, students focus on co-requisite proficiency requirements but also take a few important graduate-level courses. More graduate-level work, project-oriented research connected to a team project and/or thesis project are emphasized during the final year. Study abroad and summer off-campus experiences are optional. Curriculum requirements are available at www.clemson.edu/caah/landscapearchitecture/

Second Professional MLA

The second professional degree in Landscape Architecture is a two-year program limited to students who hold an accredited five-year professional BLA degree. In the final semester students choose between a six-credit collaborative studio or six credits of thesis work. Study abroad and summer off-campus experiences are optional. Curriculum requirements are available at www.clemson.edu/caah/landscapearchitecture/

PLANNING, DESIGN AND THE BUILT ENVIRONMENT

Doctor of Philosophy

The PhD Program in Planning, Design and the Built Environment is a transdisciplinary, three-year post-master's degree program consisting of 76 hours. In most cases, students enter the program with a master's degree in architecture or landscape architecture, city and regional planning, real estate development, or construction science. Because of the program's transdisciplinary orientation, students may be drawn from other disciplines including engineering, business, the social sciences, and humanities. Students from those program areas may be required to take prerequisite coursework. Students with advanced preparation may take slightly less than three years.

The curriculum is divided into five content areas as indicated below. Those content areas include core courses, concentration courses, elective courses, comprehensive examination and dissertation research. Students select a field from the traditional disciplines of architecture, landscape architecture, planning, real estate development, or construction to build disciplinary as well as a transdisciplinary area of concentration. Areas of concentration are developed subject to faculty expertise and student interest. Areas of concentration may be drawn from the program faculty's four transdisciplinary core areas: Regional and Community Development and Design; Built Environment and Health; Restoration, Sustainability and Land Ecology; and Technology, Materials, and Construction Processes. Specific research projects within in these concentrations might focus on urban design, health care, energy, development, transportation and land use, housing and community development, restoration, sustainability, architectural robotics, landscape ecology, and building practice and technology.

Core Courses—The core consists of 31 hours of coursework and includes advanced theory/history, advanced methods courses generally taken outside the college, a two-semester readings course within a disciplinary area, a contemporary issues seminar, courses in research design and teaching technique, and a colloquium. The core provides a foundation with some flexibility to tailor curriculum to individual needs within disciplinary fields of study, as well as a forum to address issues of the built environment in a transdisciplinary setting.

Concentration Courses—A student's area of concentration consists of 15 hours of coursework that may be taken within or outside the college. These courses add depth in the student's area of concentration. Students develop an individualized course of study to reflect their individual focus and career objectives. The course of study must be approved by the student's faculty advisor, committee members, and program director.

Electives—These courses add additional breadth and depth to the program. Students may add to their concentration coursework, select diverse offerings to complement the concentration, or develop a minor with nine hours in a second concentration.

Degree Plan and Comprehensive and Oral Exams—Students are assigned a program advisor upon entering the program. A program evaluation is conducted and a dissertation advisor and committee are selected at the end of the first full year of study. A curriculum plan for the remainder of the degree program is developed at that time. Comprehensive and oral examinations are administered following completion of the second full year in the program. Dissertation credit cannot be taken until comprehensive exams are scheduled.

Dissertation Research—Students develop a dissertation in their area of concentration. A minimum of 24 hours in dissertation research is required.

PROFESSIONAL COMMUNICATION

Master of Arts

The Department of English offers an interdisciplinary Master of Arts degree in Professional Communication which combines work in theory and research with a comprehensive emphasis on written, oral and visual communication. It prepares graduate students to be professional and technical communicators in industry and government and to be teachers of professional communication in two-year colleges. In addition, the program provides the background necessary for students who plan to pursue a PhD in rhetoric or technical communication.

This degree is designed for students with strong writing skills from all academic disciplines. The program accommodates students with undergraduate majors in technical and scientific fields, as well as those with humanities and business degrees.

The Multimedia Authoring Teaching and Research Facility and the Class of 1941 Studio for Student Communication give MAPC students access to corporate-style presentation and collaboration space as well as the newest computing hardware and software, enabling multimedia and Web design and production, digital video and audio editing, desktop publishing, and graphic design. Clemson's award-winning undergraduate writing programs and faculty with expertise in the teaching of writing allow MAPC students to work at the forefront of innovative writing pedagogy. The Campbell Chair in Technical Communication, the Pearce Center for Professional Communication, and the Effective Technical Communication Program in Engineering constitute a network of professors enabling students to work in professional communication in a variety of academic disciplines. The Usability Testing Facility allows students to conduct state-of-the-art usability research on interface designs, on-line documentation and other publications. MAPC students wishing to pursue careers in the growing field of health communication also have the option of combining the Master's degree with the Health Communication Certificate program described below.

Additional information about the MAPC program is available at www.clemson.edu/caah/mapc/.

Admission Requirements

Applicants must hold a degree in any field from an accredited college or university, with a 3.0 grade-point average on a 4.0 scale; submit a satisfactory score on the GRE general test; submit at least two letters of recommendation from individuals familiar with the candidate's academic work and/or work experience; and submit a brief résumé, a one-page statement of purpose discussing why the candidate wishes to pursue the MAPC degree and ten pages of workplace or academic writing.

Requirements for Awarding of a Degree

The MA in Professional Communication requires 30 credit hours beyond the BA or BS degree, distributed as follows:

1. Four core courses—ENGL 8500, 8520, 8530; and ENGL 8560 or COMM 6640.
2. Five electives in a specialty area chosen to meet professional goals. Possible electives include professional communication courses in writing, teaching, digital publishing and corporate communication, as well as courses in related disciplines.
3. ENGL 8920—In this three-credit course, students complete a portfolio, the main component of which is a semester-long, potentially publishable paper; or a client project accepted by the client and approved by the student's Portfolio Committee, which is comprised of three MAPC faculty. This requirement includes (a) the article or client project; (b) a multimodal introduction offering a defense of the paper or project; and (c) a formal presentation to the Portfolio Committee.

REAL ESTATE DEVELOPMENT

Master of Real Estate Development

The full-time, 57-credit, two-year professional Master of Real Estate Development (MRED) degree program is jointly offered by the Department of Planning, Development and Preservation and the School of Accountancy and Finance in the College of Business and Behavioral Science. Required courses are drawn from six disciplines: MBA/Finance, law, architecture, construction science and management, city and regional planning, and real estate development.

A ten-day South Carolina Coastal Real Estate Development Field Tour is required in mid-May. Students study developments in Myrtle Beach, Pawleys Island, Charleston, Beaufort, Hilton Head, and Savannah, GA prior to the required ten-week supervised professional summer internship. Other regional field trips occur in Charlotte, Atlanta and nearby areas.

The program creates the educational opportunity for future development entrepreneurs to produce exciting, quality projects respecting environmental and economic sustainability, social consciousness, design excellence and financial feasibility within the risk-reward framework. The development industry is complex and requires leaders trained from diverse disciplinary perspectives. The program primarily follows the principles of the Urban Land Institute (ULI), which acknowledges that development is a public-

private partnership and that quality development requires integrating the perspectives of community, environment and economics.

Some first-year students will obtain research analyst positions for ten hours per week, assisting professors in research for the Real Estate Development Program. Second-year MRED students may work two days each week during the academic year at paid internships with local real estate entities. Positions typically require interns to have transportation throughout the metro area (up to a 60-mile radius). The program requires a 10-week summer internship with a real estate business anywhere in the world.

The program seeks an interdisciplinary student body that is entrepreneurial yet team-oriented. No specific bachelor's degree is required. Work experience is not required, although it is preferred.

The program focuses on the "master builder" concept, the methodology promoting an entire vision for a community through sustainable design, creative financing, place-making and healthy communities. A graduate will become a visionary who serves as a craftsman and designer of neighborhoods and community development, one who recognizes the role of the developer in guiding the different aspects of creating the built environment—political, economic, physical, environmental, legal and sociological parameters.

Admission Requirements and Application Process

The MRED Program welcomes applications for those students who want to further their knowledge in the real estate development industry. Priority for admission is given to applicants who apply by February 15 for the fall semester. Applications are reviewed on a rolling admissions basis after the deadline until spaces are full. Students begin the program in the fall semester only.

In addition to the online application for graduate admission to Clemson University, additional application requirements include: a bachelor's degree from an accredited college or university; official college or university transcripts; official GRE/GMAT scores; official TOEFL/IELTS scores (international students); three letters of recommendation; a personal statement; and an updated resume. All supporting documentation should be uploaded with the official graduate application for admission. An on-campus visit in Greenville is recommended, but not required for admission.

For additional information about the program and the admissions process, please visit www.clemson.edu/mred.

Course Requirements

The Master of Real Estate Development Program requires a minimum of 57 credit hours (60 credits for students with no previous degree background and previous coursework in the field). Additional electives are based on class exemptions dependent on prior coursework.

Following is the required curriculum for students with no undergraduate background in the field:

First Year**First Semester**

- 3 - CRP 8000 Human Settlement
 - 3 - CRP 8020 Site Planning and Infrastructure
 - 3 - RED 8890 Selected Topics—Accounting and Finance (for non-business degree majors)
 - 3 - MBA (FIN) 8360 Real Estate Principles
 - 3 - RED 8000 Real Estate Development Process
-

Second Semester

- 3 - ARCH 8200 Building Design and Construction Principles
 - 3 - LAW 8480 Law for Real Estate Professionals
 - 3 - MBA 8410 Real Estate Finance
 - 3 - RED 8010 Real Estate Market Analysis
 - 1 - RED 8100 Real Estate Seminar Roundtable
 - 2 - RED 8120 Real Estate Technology
-

Summer Sessions

- 3 - RED 8020 Real Estate Dev. Field Tour Seminar
 - 3 - RED 8110 Summer Internship in Real Estate Development
-

Second Year**First Semester**

- 3 - CSM 8660 Contractor Role in Development
 - 3 - MBA 8330 Real Estate Investments
 - 3 - MBA 8420 Real Estate Valuation
 - 3 - RED 8030 Public-Private Partnership Dev.
-

Second Semester

- 3 - RED 8040 Practicum in Residential Development
 - 3 - RED 8050 Practicum in Commercial Dev.
 - 3 - RED 8130 Real Estate Develop. Strategic Planning
 - 3 - Elective
-

RHETORICS, COMMUNICATION AND INFORMATION DESIGN

Doctor of Philosophy

The PhD program in Rhetorics, Communication and Information Design features an interdisciplinary curriculum developed by faculty from Art, Communication Studies and English. The curriculum provides a solid foundation in theory in addition to extensive training in research and practice.

Admission Requirements

1. Acceptable GRE scores are required. For non-native speakers of English, acceptable TOEFL or IELTS scores must also be submitted.
2. Master's degree in Communication Studies, English, Art, Professional Communication, or other related field. A student with a master's degree in another field of study may apply to the program with the understanding that he/she may be required to complete prerequisite, master's-level courses in professional communication prior to full admission to the PhD program.

3. Minimum grade-point average of 3.5 in previous graduate work. The student must submit all transcripts of previous graduate and undergraduate work.

4. International students seeking graduate teaching assistantships, whose native language is not English and whose secondary education (and beyond) was not taught fully in English, must pass the SPEAK test of proficiency in spoken English. Prospective international teaching assistants will also undergo an interview during which their proficiency in spoken English will be evaluated by faculty members in the RCID program.

In addition, the student must submit the following:

1. Portfolio of previous graduate work, including a writing sample, preferably a sole-authored paper submitted in a graduate class
2. Personal statement addressing the student's interest and intent in pursuing the PhD in Rhetorics, Communication and Information Design
3. Minimum of three letters of reference from academic sources
4. Completed application for admission

Program Requirements

Candidates for the PhD degree must complete 36 hours of graduate credit, including five required core courses (RCID 8010, 8020, 8030, 8040, 8050), five cognate courses in a specialization and six credit hours of studio research or applied project work (RCID 8800). Candidates must also pass a comprehensive exam and write a dissertation.

VISUAL ARTS**Master of Fine Arts**

The Master of Fine Arts degree is the terminal degree in the visual arts. Clemson University's program offers concentrations in the studio areas of drawing, painting, printmaking, ceramics, photography and sculpture. Interdisciplinary and collaborative projects are encouraged within the department. The primary goal of the program is to provide students opportunities to develop a high degree of professional competence in their chosen area of concentration.

Admission Requirements

The Master of Fine Arts degree program in Visual Arts admits a limited number of talented and creative candidates on a competitive basis upon review of the following materials:

1. Bachelor's degree from an accredited college or university with a major in Visual Arts. Especially well-qualified persons from other disciplines or degree backgrounds with exceptionally strong portfolios may be accepted.
2. Minimum grade-point average of 3.0 on the last 60 major credit hours of undergraduate work

3. Portfolio documentation of the applicant's creative work. The portfolio should include 15 to 20 works, the majority of which represent the applicant's chosen field of study. The portfolio should consist of 20 images and an accompanying list identifying each image and indicating the size of the work and the media used. CDs with images in JPEG or PDF format are preferred. PowerPoint documents are not accepted. The portfolio is reviewed by the Admissions Committee, composed of members of the faculty of the Department of Art. Applicants are also encouraged to arrange for a campus interview before or during the application process.

4. Three letters of recommendation from major professors, producing artists, or professional acquaintances who are familiar with the applicant's work and development in the visual arts.

5. A one to two-page artist statement that provides insight into the development of the work completed to date. The statement should address ideas relative to form and content.

6. Statement of intent regarding applicant's interest in pursuing the graduate degree

7. No GRE is required.

Requirements for Degree Candidacy

The prospective candidate must have a review of his/her work at the end of each semester. It will be determined at this time if the student should continue or whether additional study is required at either the undergraduate or graduate level. Upon completion of 30 hours, the candidate must pass an oral review to determine readiness for thesis work. A Graduate Thesis Committee will be assigned at this time to assist the thesis development and concluding thesis exhibition.

The candidate must complete 30 hours and a full-time residency during the second year of study.

Requirements for Awarding of a Degree

1. A minimum of 45 credit hours with a B average or better in the student's professional curriculum, including 36 hours of ART 6000- and 8000-level studio courses and nine hours of AAH 6000- and 8000-level Art History courses.
2. A 15-credit-hour thesis culminating in satisfactory completion of a written documentary of the "thesis exhibition" and an oral examination by the graduate faculty.

COLLEGE OF BUSINESS AND BEHAVIORAL SCIENCE

The mission of the College of Business and Behavioral Science is to develop leaders through education and research focused on human behavior and business practices in organizations, economics and societies.

The College of Business and Behavioral Science offers advanced degrees in Accounting, Applied Economics, Applied Economics and Statistics, Applied Psychology, Applied Sociology, Business Administration, Economics, Graphic Communications, Human Factors Psychology, Industrial/Organizational Psychology, Management, and Marketing. The Master of Real Estate Development is offered in cooperation with the College of Architecture, Arts and Humanities.

Courses are also offered in entrepreneurship, finance, law, marketing and political science to provide program requirements and electives for students in other areas.

The graduate programs in the College of Business and Behavioral Science provide a wide range of opportunities for academic careers and for professional careers in business, industry, government and nongovernment public sector organizations. Degrees offered in the business disciplines are fully accredited by the Association to Advance Collegiate Schools of Business (AACSB).

In the MA, MS and PhD programs, extensive research programs involve graduate students in both theoretical and applied research and provide excellent opportunities for thesis and dissertation research. The professional master's degree programs feature assistantships and internships that provide opportunities for practical experience in the student's field. Financial aid, in the form of fellowships and teaching and research assistantships, is available for full-time participants in most graduate programs.

In addition to a full range of graduate programs offered on the main campus, the following degree programs are offered at satellite locations in Greenville, SC: business administration, accounting, management, marketing and real estate development.

Additional information is available at cbbs.clemson.edu.

ACCOUNTING

Master of Professional Accountancy

The Master of Professional Accountancy (MPAcc) degree program prepares students to begin careers in public accounting or further graduate study. The program requires 30 credit hours and ACCT 8560, 8570, 8580, and 8590 and is open to students with appropriate backgrounds. The program accommodates full- and part-time students. Full-time students are able to complete the program in one year.

The MPAcc program recognizes the evolution of the theory and practice of financial reporting, auditing and taxation, technological advances in managing data and increases in the volume and scope of authoritative pronouncements from the FASB, IASB, SEC and IRS. Two specializations are available: Assurance Services and Taxation. The program is accredited by AACSB, International.

Applicants should hold a bachelor's degree from an institution whose scholastic rating is acceptable to the Graduate Admissions Committee of the School of Accountancy and Finance. Admission to the program is based on academic record and score on the Graduate Management Admission Test (GMAT). Letters of recommendation and relevant work experience also may be considered. Applicants should have completed a basic business core of at least 30 credit hours, as well as the following accounting prerequisites: intermediate accounting (at least six credit hours), cost accounting (three credit hours), individual income tax (three credit hours), auditing (three credit hours), and accounting information systems (three credit hours). Current information is available at business.clemson.edu/departments/acct/acct_grad.htm.

APPLIED SOCIOLOGY

Master of Science

The Department of Sociology and Anthropology offers the MS degree in Applied Sociology emphasizing practical and theoretical knowledge in the areas of industrial and organizational sociology and focusing on the acquisition of social research skills, theory application and practical field experience. Students are prepared for employment in federal, state and local government agencies; in industry and related agencies; and to pursue a doctorate.

Applicants must hold a bachelor's degree from an accredited degree program; must have completed a minimum of 15 undergraduate credit hours in sociology or another social science discipline that includes at least one course each in statistics, research methods and sociological theory; must submit satisfactory GRE scores on the verbal, quantitative and written sections (will normally include a minimum of 154 on the verbal section, 144 on the quantitative section and a 4.0 on the written section); must submit three letters of recommendation, at least two of which are from faculty members of the applicant's previously attended college or university; and must submit a 500-word essay on career aspirations and goals, explaining how completion of this program in Applied Sociology will assist in achieving these goals.

Students selecting the thesis option are required to complete a minimum of 38 credit hours of coursework, including SOC 8030, 8050, 8070, 8100, 8300, 8950, four credit hours of SOC 8970, and either ANTH 6030 or SOC (RS) 6710. In addition, students choosing the thesis option are required to complete six hours of thesis credit (SOC 8910) and successfully defend a formal thesis. Students choosing the non-thesis option must complete 44 hours of coursework, including SOC 8030, 8050, 8070, 8100, 8300, 8950, four credit hours of SOC 8970, and either ANTH 6030 or SOC (RS) 6710. In addition, students select-

ing the non-thesis option must pass a departmentally administered comprehensive examination. Students must demonstrate competence in basic statistics by passing a departmentally administered competency examination or by earning a B in EXST 8010. A six-hour internship in an applied setting is required of all students. The field placement is coordinated by the student, the graduate director and the on-site supervisor. Typically, the internship is completed in the summer between the first and second years of the program, but only after completing a minimum of 12 credit hours of 8000-level coursework. In exceptional circumstances, the graduate coordinator may approve the substitution of six hours of appropriate coursework for the field placement when the student has had work experience comparable to the placement.

BUSINESS ADMINISTRATION

Master of Business Administration

The Master of Business Administration (MBA) program provides an in-depth approach to business education, with opportunities to engage in real-world projects, interact with the business community, and participate in an extensive network of professional development activities. As is typical of MBA programs, the Clemson MBA is designed for students with a minimum of two years of post-undergraduate professional work experience. Some exceptions to the work experience standard are made for outstanding students with non-business undergraduate degrees, particularly those pursuing another graduate or "dual" degree at Clemson.

The MBA program provides a flexible, high quality experience designed to prepare graduates for successful management careers in business. The academic program is a maximum of 55 credit hours (roughly 21 courses) for those with little work experience and no prior business education; and a minimum of 36 credit hours (about 14 courses) for those with significant work experience and prior education in business. Students may pursue the MBA full-time (roughly 12 credit hours per semester) or part-time (three–six credit hours per semester) in the evenings. The MBA program is offered in Greenville.

The MBA program includes foundation, core, elective and internship courses. The foundation and core courses provide in-depth coverage for the basic business functions, as well as communications, ethics and leadership. Additionally students are required to complete nine hours of approved graduate electives. Full-time students are encouraged to participate in internships or in one of many international study-abroad options during the summer.

Admission is based on standardized test scores (GMAT, TOEFL for applicants whose native language is not English), two letters of recommendation, academic background (transcripts), work experiences (resume) and an interview. For more information about the admissions process or program specifics, including dual degree opportunities, please visit www.clemson.edu/mba.

Entrepreneurship and Innovation Concentration

The Master of Business Administration Entrepreneurship and Innovation Concentration complements the existing MBA degree program and is aimed at individuals seeking business training directed toward new business creation. This concentration area is designed for working professionals seeking to realize their emerging business dreams; existing owners of start-up companies seeking to expand their entrepreneurial knowledge; and recent graduates of universities who have decided not to pursue initial careers in corporate settings.

The Entrepreneurship and Innovation Concentration within the MBA program includes 36 hours of coursework. The coursework covers topics such as Entrepreneurial Mindset, Building Business Insights, Advanced Business Learning as well as a business seed competition for all students enrolled in the program. During the course of the program students receive help from experienced entrepreneurial mentors, create a business plan, register and/or incorporate a business and create and launch a company Web site and social media presence.

Admission is based on students' academic background, standardized test scores (GMAT, TOEFL for applicants whose native language is not English), business idea presentation, work experience (résumé), and letters of recommendation. For more information regarding the admissions process or program specifics, please visit www.clemson.edu/mba.

ECONOMICS

Master of Arts

Master of Science

Doctor of Philosophy

The Department of Economics offers PhD degrees in Economics and Applied Economics, a Master of Arts in Economics, and a Master of Science in Applied Economics and Statistics. In addition, excellent undergraduate students can enroll in the BA/MA program in Economics, in which up to twelve hours of graduate courses can be applied to both the undergraduate and MA degrees in Economics. Detailed program information is available at <http://economics.clemson.edu/graduate-program>.

Master of Arts

Applicants to the MA degree program must have completed at least 12 credit hours of undergraduate economics, including a course in intermediate microeconomic (price) theory. A background in mathematics, including at least one course each in multivariate calculus and statistics, is also required. When necessary, the economic theory, mathematics, and statistics courses may be taken at Clemson University.

The graduate program includes at least one course in econometrics and a minimum of two courses in economic theory. Program concentrations in financial economics, labor economics, monetary economics, environmental economics, industrial organization, and public sector economics are offered.

Students pursuing a terminal MA degree must complete 24 credit hours of coursework, six credit hours of thesis research, and submit an approved thesis. PhD students continuing beyond the first year may receive an MA degree upon the completion of the PhD core courses with at least a B average. With the permission of the graduate coordinator, a maximum of six hours of course credit may be earned for graduate courses taken at Clemson outside the Department of Economics. All remaining courses must be taken within the Department.

Combined BA/MA in Economics

The BA/MA program allows students to count up to 12 hours of graduate credit toward both the bachelor's and master's degrees. Students participating in this program must major in either the BA or BS in Economics, have a minimum cumulative grade-point average of 3.4, and be admitted to the Graduate School prior to registering for graduate courses. Details of the suggested curriculum and program information are available from the Department of Economics. Application details are available in the Undergraduate Announcements.

Master of Science

The MS in Applied Economics and Statistics is jointly administered in cooperation with the College of Agriculture, Forestry and Life Sciences. The program provides training in applied economics, econometrics, and statistical methods. Students have the opportunity to develop skills in applied economic analysis, econometric modeling, policy analysis, and the design and of experiments and surveys. These methods are applied to a variety of concentrations supported within the Department of Economics, and within the School of Agriculture, Forest and Environmental Sciences, including agribusiness, agricultural economics, economic development, and environmental and natural resource economics.

The MS curriculum has a thesis option and a non-thesis option. The thesis option is designed for individuals who plan to pursue a Ph.D. degree or a career that requires a high level of research competence. The thesis option requires 24 semester hours of coursework and six credit hours of thesis research. The non-thesis option is designed for individuals who want technical skills for their professional careers in business or government. The non-thesis option requires 30 semester hours of coursework.

Doctor of Philosophy

The PhD program in Economics develops students who are well-trained in economic theory and its empirical application to research in a variety of fields. Applicants to the program should have a strong background in economic theory and statistics. The PhD in Economics requires 60 hours of coursework, including 18 dissertation hours. Demonstration of competence by passing core course sequences in the initial year of study and subsequent qualifying exams in economic theory and econometrics is required. Students choose two concentrations from among the fields of economic growth and development, environmental economics, financial economics, industrial organization, labor economics, monetary economics, public economics, and others supported by departments across the University. Coursework

in these fields is generally undertaken in the second and third years of study, with the goal of developing a significant research program leading to successful completion of the dissertation within four or five years.

Faculty in the department are also responsible for the PhD program in Applied Economics in collaboration with faculty in the College of Agriculture, Forestry and Life Sciences. Fields in agricultural economics and environmental and natural resource economics are offered in this program.

GRAPHIC COMMUNICATIONS

Master of Science

The Master of Science in Graphic Communications degree program prepares students for technical, creative, or professional careers in graphic communications, the third largest manufacturing industry in the United States. The program serves the needs of graphic communications, graphic arts, printing management, or graphic design graduates from other institutions, as well as undergraduates with degrees in engineering, manufacturing, computer science, communications, technology and various business fields who want to transition into graphic communications fields.

The MS program is enhanced by Clemson's undergraduate program of more than 400 students and works closely with Clemson's nationally recognized Packaging Science program. Industry supports well-equipped GC laboratories. Graduates are placed in positions in a variety of printing, packaging, publishing, imaging and related industries in management, marketing, sales, customer service, creative, technical, scientific and academic positions. Placement rates are consistently high.

Program entrance is available fall, spring and first or second summer terms. Requirements for the program include 33 credit hours of graduate courses for a non-thesis option or 30 hours with a thesis. Within the total requirements, at least 17 hours will be in GC technical/managerial courses; seven will be research related; six credits will be from outside the Graphic Communications Department; and at least one-half will be at or above the 8000 level. Based upon applicant's undergraduate coursework and work experience, prerequisite courses may be required in specific areas. Students without relevant work experience will also complete an industrial internship.

In addition to the standard Application for Admission, the Graphic Communications Department admissions committee requests a narrative of approximately two pages in length, to include related and nonrelated work history, educational background, current position and an explanation of how Clemson's MS in Graphic Communications program relates to the applicant's professional goals. A separate résumé should accompany the narrative.

MANAGEMENT

Master of Science

Doctor of Philosophy

Master of Science

The Master of Science in Management (MSM) program prepares professionals to be effective leaders in supply chain, innovation, and information technology management. Graduates will have the advanced technical, entrepreneurial, and leadership skills necessary to succeed as mid- or upper-level managers in manufacturing, service, and consulting organizations. The MSM program also prepares qualified students for further doctoral study in the fields of supply chain and operations management, as well as information systems management. MSM students benefit immensely from the focused curriculum, close coordination of courses with the Master of Business Administration (MBA) program, and small class sizes.

The program requires a business discipline undergraduate or graduate degree. The MSM curriculum requires 30 credit hours, which include seven core management discipline courses, consisting of Information Systems, Managerial Decision Modeling, Operations Management, Organizational Behavior/Human Resources Management, Project Management, Statistical Analysis of Business Operations, and Strategic Management. A thesis or comprehensive final examination is required once all coursework has been completed. Core and elective courses cover a broad range of topics in supply chain and information technology management and in entrepreneurship and innovation management. The Graduate Programs Committee will approve the final program for each student based on his/her background, interests and availability of courses. Students can complete the program in ten months; however, there are a limited number of graduate courses offered by the Department of Management during summer sessions. Students may elect to take an independent study or directed readings course within their area of interest.

MSM courses are offered in Greenville, although students may also take courses offered on the main Clemson campus. All MSM students have high-speed access to the Internet and campus-wide networks containing the latest business applications. The Department of Management has a dedicated Enterprise Management Laboratory that provides access to industrial manufacturing resource planning software. The mission of the laboratory is to promote operations management by attracting talented students to the field and uniquely preparing them for career challenges in the profession. This is accomplished through active learning involving modern principles of manufacturing management, leading-edge enterprise resource planning software, teamwork, and leadership.

Combined BS/MS in Management

Undergraduate Management majors at Clemson University may begin a Master of Science (MS) degree in Management while completing their Bachelor of Science (BS) degree requirements. The BS in Management degree allows up to 12 credits of mutually acceptable graduate course credits to satisfy require-

ments for both degrees. Students participating in this program must have a minimum undergraduate grade-point average of 3.4, have completed at least 90 credits, and be admitted to the Graduate School prior to registering for graduate courses. Students in the combined degree program are conditionally accepted to the graduate program until completion of the BS degree requirements.

Doctor of Philosophy

The PhD program in Management is designed to provide advanced education for students of outstanding ability who desire to pursue careers in academic research institutions. The coursework for the PhD in Management includes a rigorous set of intellectually stimulating and challenging scholarly methods, foundation, and advanced courses and seminars. In addition, the program requires successful passage of a comprehensive examination and successful completion of the doctoral dissertation. A variety of learning experiences are incorporated into the curriculum, including the development of conceptual frameworks and theories, qualitative case and empirical studies, field projects, and in-depth research. Before graduating, each student will (1) have presented, or had accepted for presentation, a paper before a professional or scientific society; or (2) have had an article published, or accepted for publication, in a refereed journal. In addition, each student will have classroom teaching experience.

Within the Department of Management, PhD students have tremendous opportunities to conduct cross-disciplinary research between supply chain and operations management and information systems or with high-quality faculty in entrepreneurship and strategic management, as well as organizational behavior and human resources management. The goal is to position graduates for scholarly academic careers at colleges and universities throughout the United States and the world.

The PhD program in Management is designed for full-time students who remain on-campus during the entire duration of their study. Students may enter the program in the fall semester only (starting mid-August). Students with bachelor's or master's degrees in a business discipline can typically complete the program in five years (contingent on satisfactory progress in the program), although some students may complete the program in four years. Students with non-business degrees will need to complete background courses that may lengthen the program duration. Students entering the program must have completed undergraduate and/or graduate coursework in calculus and linear algebra.

MARKETING

Master of Science

The Master of Science in Marketing degree program advances students' knowledge and expertise in marketing theory and practice and prepares them for careers in marketing analysis, research, management and scholarship. A coordinated curriculum of quantitative and analytical skills development, research methods, consumer analysis and strategic marketing analysis provides students with the necessary background to pursue careers in marketing

research, analysis and policy and/or as a platform for further education to prepare students for careers in academe. This is accomplished through rigorous coursework and seminars and a major research project. This one-year master's degree is designed to enhance the skills and training of students with prior academic and work experience in business. Applicants should have an undergraduate degree in business from an accredited college or university. In addition, it is preferred that incoming students have some professional work experience. Students applying to the MS in Marketing program who are not graduates of an AACSB-accredited college or school of business administration will be required to demonstrate completion of three credit hours of collegiate microeconomics, six hours of calculus and a junior-level course in marketing, or equivalent, to be considered for the program.

The Master of Science in Marketing degree requires completion of 30 credit hours of graduate marketing and related coursework. Core classes include EX ST 8010, MKT 8600, 8610, 8620, 8630, 8650, 8700. In addition, three credit hours in approved graduate coursework and three hours in advanced topics in marketing are required. MS in Marketing courses are typically offered in Greenville, although students may also take courses on the main Clemson campus.

MBA

See Business Administration heading.

PSYCHOLOGY

The Department of Psychology offers PhD degrees in Industrial/Organizational Psychology and in Human Factors (Engineering) Psychology and an MS degree in Applied Psychology with concentrations in Industrial/Organizational Psychology and Human Factors Psychology. These programs are designed to provide the student with the requisite theoretical foundations, skills in quantitative techniques and research design and practical problem-solving skills to address human problems related to work and to broad uses of technology. The Human Factors Program is fully accredited by the Human Factors and Ergonomics Society.

APPLIED PSYCHOLOGY

Master of Science

HUMAN FACTORS PSYCHOLOGY

Doctor of Philosophy

INDUSTRIAL/ ORGANIZATIONAL PSYCHOLOGY

Doctor of Philosophy

Information regarding Psychology Degrees

A formal thesis and an internship are required for the MS degree. MS students complete 45 credit hours, including six hours of thesis credit and six hours of credit for the internship. Typically, the internship

is completed in the summer between the first and second years of the program. In some cases, six credit hours of approved electives may be substituted for the field internship.

Students in the doctoral programs are expected to satisfy the master's program requirements plus an additional 45 credit hours prior to receiving the doctorate. In addition to the required courses, a doctoral program must include 18 hours of dissertation research and an oral dissertation defense. Students are admitted to candidacy for the PhD degree upon successful completion of a comprehensive examination.

Applicants should have an undergraduate degree with a major in psychology or a related field from an accredited college or university. All applicants must submit scores from the general portion of the GRE. Applicants must also submit three letters of reference and a statement describing their interests and accomplishments and the faculty members they want to work with. The application deadline is January 15. Program information and application requirements are available at www.clemson.edu/psych/.

REAL ESTATE DEVELOPMENT

Master of Real Estate Development

The Master of Real Estate Development Program, jointly administered by the School of Accountancy and Finance in the College of Business and Behavioral Science and the Department of Planning, Development and Preservation in the College of Architecture, Arts and Humanities, creates the educational opportunity for encouraging future development entrepreneurs to produce exciting, quality projects respecting environmental sustainability, social consciousness, design excellence and financial feasibility within the risk-reward framework. See complete program description under the College of Architecture, Arts and Humanities.

TECHNOLOGY ENTREPRENEURSHIP

Certificate

The Certificate in Technology Entrepreneurship is available to graduate students in engineering and science disciplines across campus. The certificate is intended to serve those students who envision an entrepreneurial career as their long-range career goal, who want to be involved in new product and new business activities within a corporate setting, or who seek a better understanding of the process of commercializing inventions.

For more information, please visit www.clemson.edu/mba

COLLEGE OF ENGINEERING AND SCIENCE

The College of Engineering and Science offers advanced degrees in Automotive Engineering, Bioengineering, Biosystems Engineering, Chemical Engineering, Chemistry, Civil Engineering, Computer Engineering, Computer Science, Digital Production Arts, Electrical Engineering, Environmental Engineering and Science, Human Centered Computing, Hydrogeology, Industrial Engineering, Materials Science and Engineering, Mathematical Sciences, Mechanical Engineering, Photonic Science and Technology, and Physics.

Courses are offered in astronomy, engineering graphics, and environmental science and policy to provide electives for students in other areas.

Degrees offered are the Master of Engineering, Master of Science and Doctor of Philosophy. The MS and PhD programs serve primarily full-time graduate students. Industrial residency programs leading to the Master of Science degree are available in certain engineering departments. Financial aid, in the form of full and partial fellowships and teaching and research assistantships, is available. Other financial aid packages are available to outstanding applicants. A broad and vigorous research program provides excellent opportunities for thesis and dissertation research.

The Master of Engineering program is open to individuals who are interested in professionally oriented advanced study. Requirements for the program are a baccalaureate degree from an ABET-accredited engineering program or equivalent, academic and professional records which indicate motivation for and the ability to complete additional professional study and acceptance by the chair of the department in which the individual plans to major and by the Dean of the College of Engineering and Science.

Graduate engineering education opportunities for practicing engineers are available in two disciplines. The Department of Electrical and Computer Engineering offers off-campus graduate courses leading to the Master of Engineering degree through satellite broadcasts, Internet and DVD. The Department of Mechanical Engineering offers selected off-campus graduate courses at the University Center of Greenville. Furthermore, graduate courses in both disciplines are offered on-campus during the late afternoon/early evening once a week.

AUTOMOTIVE ENGINEERING

Master of Science

Doctor of Philosophy

The Master of Science and Doctor of Philosophy degrees in Automotive Engineering prepare a new generation of engineers to deal with the complex technological, environmental and globalization issues facing the automobile industry.

The big challenge facing the industry is the integration of diverse technologies in the automobile and its cost effective and environmentally responsible manufacture, all being done in a global network with people of different backgrounds and cultures. The Automotive Engineering programs equip students with the basis, depth and domain knowledge needed for master's and doctoral-level expertise in systems integration and vehicle systems engineering and the ability to work globally. Graduates of the program are able to lead teams of culturally diverse individuals to produce an integrated automobile platform or to work in research laboratories involved with the design of new products in the automotive field. While the program is geared toward the automobile industry, it produces strong linkages with the aerospace and other industries within the state, region and nation as some of the challenges faced by the automotive industry are also faced in other sectors.

Master of Science

Admission to the MS program occurs in the fall semester only. Students are required to hold a BS degree from a recognized relevant engineering or science discipline with preference of two years of post-baccalaureate full-time work experience in industry. Students have the opportunity to tailor the program to a number of specializations within automotive engineering through appropriate course choices.

The program is divided into four content areas, consisting of 36 credit hours of coursework and six hours of project work, as follows:

Core Courses—AU E 8330, 8350, 8800, 8810, 8820, 8830

Automotive Engineering Track—18 credit hours in up to three track areas with nine hours in automotive engineering courses and nine hours based on the student's interests and specialization.

Business or Related Field—a minimum of six hours in a concentration area or minor approved by the advisory committee

Internship—a six-credit-hour internship of six months duration in an industrial setting or project-based in the internal Deep Orange vehicle developing and prototyping program (Deep Orange also requires AuE 8830 as a core course)

Doctor of Philosophy

Students are admitted into the PhD program in the fall, spring and summer terms. Minimum admission requirements include a bachelor's or master's degree in a recognized relevant engineering or science discipline. Students entering the program directly with a BS degree must meet the entrance requirements for the MS degree and have a grade-point average of 3.5 or higher in their undergraduate programs. Program requirements are as follows:

Core Courses—AU E 8330, 8350, 8800, 8810

Automotive Engineering Track—minimum of six hours (two AU E courses from two track areas)

Discipline-Specific Courses—no minimum requirements, typically five additional courses

Business or Related Field—minimum of three hours in a directed, nontechnical field

Technical Courses—minimum of nine hours in a concentration area outside the discipline or a technical minor

Dissertation—18 credit hours

Foreign Residency—six-month residency at a foreign research laboratory or university is encouraged

BIOENGINEERING

Master of Science

Doctor of Philosophy

Bioengineering is the application of engineering and scientific principles to understand and solve medical problems. As medical technology has rapidly developed over the past four decades, the demand for qualified bioengineers has dramatically increased. Career opportunities for bioengineers range from teaching and conducting basic research in academia to research and development work in the growing medical product industry. Employment opportunities are also available in independent research laboratories, hospitals and federal agencies such as the Food and Drug Administration or the National Institutes of Health.

Applicants to the Bioengineering programs typically hold a Bachelor of Science degree in engineering or applied science. Students with nonengineering backgrounds are required to take remedial courses in engineering (e.g. materials science, statics and mechanics, and calculus through differential equations) in addition to their regular bioengineering curriculum, which may be taken either before or after enrollment.

The Department offers a Master of Science and a Doctor of Philosophy degree. The curriculum for the MS degree consists of a core of recommended bioengineering courses supplemented by elective courses that provide the student greater depth in a specific area of interest. Two degree options are offered at the master's degree level: a thesis and a non-thesis option. The thesis option requires a total of 30 credit hours (six of which must be research credits) and the submission and defense of a master's thesis. The non-thesis option requires a minimum of 33 credit hours followed by the submission and oral presentation of a publishable-quality report on an approved topic. The minimum time necessary to complete the master's degree is normally 16 months, out of which at least one academic semester must be undertaken in residence as a full-time student at Clemson University.

Students interested in obtaining a doctoral degree are encouraged to apply directly to the PhD program from their BS degree program, with the PhD program typically requiring about five years to complete following the BS degree or about four years following the MS degree. The selection of courses for the doctoral degree is flexible and depends on the background and objectives of each candidate. A typical program includes 12 or more credit hours of graduate-level courses beyond the MS degree requirements and a total of 60 hours beyond the bachelor's degree. Candidates for the PhD degree must provide evidence of their potential success in advanced graduate study. This is demonstrated by passing the candidacy exam. The PhD program culminates with the presentation and successful defense of a doctoral dissertation, which is scheduled following the completion of the student's approved research plan. More detailed information is available in the website: <http://www.clemson.edu/ces/bioe/>

Combined BS/MS Plans

The Department of Bioengineering offers a combined BS/MS plan. Under the plan, Clemson students may reduce the time necessary to earn both a BS degree in Bioengineering or Biological Sciences and an MS in Bioengineering by applying graduate credits to both undergraduate and graduate program requirements.

Students are encouraged to obtain the specific requirements for the dual degree from the undergraduate department or the Department of Bioengineering as early as possible in their undergraduate programs to ensure that all prerequisite and other program requirements are met. Enrollment guidelines and procedures can be found in the website: <http://www.clemson.edu/ces/bioe/>

BIOSYSTEMS ENGINEERING

Master of Science

Doctor of Philosophy

The biosystems engineering graduate program within the Department of Environmental Engineering and Earth Sciences is designed to prepare graduates for leadership, creative accomplishment and continued professional learning, and to prepare graduates to effectively conduct independent scientific research related to sustainable biological systems design.

Students from all engineering disciplines are encouraged to apply. Applicants from non-engineering disciplines are welcome, but may be required to take additional undergraduate courses. Each degree program is planned individually to augment the student's previous engineering and science background with adequate breadth in engineering and specialization in an area of biosystems engineering including bioprocessing and ecological engineering. In addition to biosystems engineering, course work includes mathematics, physics, chemistry, statistics, and biological and engineering sciences.

Graduates from the BE program find employment in biofuels, biopharmaceutical and bioprocessing plants or biorefineries, engineering and environmental consulting firms, sustainable land and water resource management, state and federal government agencies, and academia.

For admission to the M.S. or Ph.D. program, an applicant should have a grade point average (GPA) of at least 3.0 out of 4.0. Ranges of scores for students admitted to the BE program on the Graduate Record Exam (GRE) are typically greater than 155 (700) Q, 150 (450) V, 3.5 A and 90 TOEFL. Students with a baccalaureate or masters degree in a related science or engineering field may apply directly to the PhD program. Students with exceptional records and experience in research will be considered for the PhD degree without a master's degree, while most students admitted to the PhD program will have previously received a masters degree.

Combined BS/MS in Biosystems

Engineering

Under this plan, Clemson students may reduce the time necessary to earn both degrees by applying graduate credits to both undergraduate and graduate program requirements. Students are encouraged to obtain the specific requirements for the dual degree from the Department of Biosystems Engineering as early as possible in their undergraduate program. Enrollment guidelines and procedures can be found in the *Undergraduate Announcements*.

CHEMICAL ENGINEERING

Master of Science

Doctor of Philosophy

The Department of Chemical and Biomolecular Engineering offers programs leading to the Doctor of Philosophy and the Master of Science degrees. Graduate programs at Clemson prepare students to apply science and engineering principles to complex problems associated with the chemical, biomolecular and associated industries. Students develop a rigorous fundamental science base coupled with insight into engineering applications. Graduates can become involved in the research, manufacture and use of chemicals, polymers, pharmaceuticals, electronic components, consumer products and petroleum products, to name a few. The department has strong research programs in advanced materials, biotechnology, energy, and chemical and biochemical processing.

Although most graduate students have a BS in Chemical Engineering, students with backgrounds in chemistry, physics, or other branches of engineering are encouraged to apply and will be considered fully for admission. To facilitate a transition from BS degrees other than Chemical Engineering, special programs are available. Students can enter the PhD program in Chemical Engineering directly after completion of a BS degree.

The MS degree program consists of 30 credit hours, including six credit hours of research. Coursework includes CHE 8030, 8040, and 8050. In addition, six hours of approved chemical engineering electives and nine hours of approved technical electives are required. At least six of these 15 elective hours must be selected from courses numbered 8000 or above. MS degree candidates must complete a thesis.

The PhD program consists of 30 credit hours of approved graduate courses beyond the BS degree, including six credit hours of approved graduate courses at Clemson. Admission to candidacy for the PhD degree requires completion of written qualifying and oral comprehensive examinations. Doctoral students must satisfy the MS course requirements through courses taken at Clemson University or elsewhere. In addition, each student is required to complete 30 credit hours of graduate research, including 24 doctoral dissertation research credit hours (CHE 9910) taken at Clemson University. The PhD program concludes with the completion and defense of a doctoral dissertation.

Minors for doctoral students may be taken in chemistry, physics, mathematics, life sciences, or other branches of engineering.

CHEMISTRY

Master of Science

Doctor of Philosophy

Degree concentrations are offered in analytical, inorganic, organic and physical chemistry. Research areas also include bio-organic chemistry, polymer chemistry, materials chemistry, chemical physics and other areas.

MS degree candidates must complete 24 hours of coursework and six hours of research culminating in a satisfactory thesis.

The primary requirement for the PhD degree is the performance of original research leading to a dissertation. PhD degree candidates must qualify to pursue the degree by completing a flexible curriculum of coursework designed to demonstrate broad chemical awareness, a distribution requirement and a focus area requirement. Some coursework requirements may also be satisfied by examination. Students must complete 18 graduate credits in their first year of study and must have a GPR of 2.90 or better by the end of their third semester.

Admission to candidacy for the PhD degree requires completion of a comprehensive examination in the area of concentration. This exam takes the form of a written cumulative exam, followed by an oral presentation before a faculty committee.

CIVIL ENGINEERING

Master of Science

Doctor of Philosophy

The Department of Civil Engineering offers graduate programs leading to the Master of Science and Doctor of Philosophy degrees. Within these degrees, there are six primary emphasis areas: Applied Fluid Mechanics, Construction Materials, Geotechnical Engineering, Project Management, Structural Engineering and Transportation Systems.

Master of Science

The Master of Science degree program is open to all individuals who have a four-year baccalaureate degree. A degree in engineering is not required for admission, but most entering students have an undergraduate Civil Engineering degree.

There are two options available for students pursuing a Master of Science degree. The student may prepare a research thesis or may take additional courses in lieu of completing a thesis.

The thesis option requires the preparation of a research thesis that is a part of the total credit hours required for the degree. Students intending to pursue a doctoral degree usually choose the thesis option. Completion of a research thesis is excellent preparation for the research necessary for a doctorate if a student is inclined to pursue that degree in the future.

The non-thesis option does not require the preparation of a research thesis but does require completion of additional coursework. This degree option provides the student with additional directed study through coursework. Normally students pursuing the non-thesis option will not pursue a doctorate.

Except for the core courses required by different disciplines, there are no formal course requirements for students pursuing a Master of Science degree. The program normally contains some engineering design and a minimum of ten credits of engineering science, advanced mathematics and basic science. In addition, each student in the thesis option must complete an advanced research project. The final program of study must contain at least 30 hours of graduate credit including the core curriculum requirements. Of these 30 credits, no more than six hours may be thesis research (CE 8910) for those students pursuing the thesis option. At least half of the remaining hours must be from courses numbered 8000 or above.

The final examination for the MS non-thesis option is an oral or written exam (or a combination of the two) consisting of questions related to fundamental knowledge in a student's chosen area of concentration (i.e., applied fluid mechanics, construction materials, geotechnical engineering, project management, structural engineering, or transportation systems).

The final examination for the MS thesis option is an oral exam consisting of a student's MS thesis defense and questions related to fundamental knowledge in a student's chosen area of concentration (i.e. applied fluid mechanics, construction materials, geotechnical engineering, project management, structural engineering, or transportation systems).

Doctor of Philosophy

The Doctor of Philosophy degree program is open to all individuals who have a baccalaureate degree and preferably a Master's degree in engineering. Except for the core courses required by different disciplines, there are no formal course requirements for students pursuing a PhD degree; however, each student must complete 18 hours of dissertation research (CE 9910).

The purpose of the PhD research dissertation is to afford the student the opportunity to participate in independent specialized engineering research that can advance the state of the art. The research is conducted under the direction of a member of the faculty who will normally serve as chair of the student's academic advisory committee. The research should be sufficiently demanding technically so as to demonstrate the student's ability to assimilate knowledge from several subject areas for the advancement of engineering knowledge.

Student Evaluation—During the first two semesters in residence, a PhD student must select a faculty advisor. The faculty advisor may assign the student specific duties outside normal coursework requirements that include, but are not necessarily limited to, preparing research proposals and literature surveys, conducting classroom lectures, formulating computer models and executing data collection and analysis. The advisor may, at any time, withdraw as the student's faculty advisor if these assigned duties are not performed consistent with the expectations of the faculty advisor. During this initial two-semester period, an advisor should make a determination as to whether a student is capable of completing the requirements for the PhD degree.

Comprehensive Examination—The PhD comprehensive examination is generally scheduled after all coursework has been completed and the dissertation pro-

posal is ready for approval by the student's graduate committee. The examination, therefore, consists of two parts: (1) a written and/or oral examination by the advisory committee on the student's preparation to complete the proposed research and (2) presentation of the proposed research. The PhD comprehensive examination should be completed within two years of entering the PhD program. The written and/or oral examination may include consideration of graduate coursework, preliminary research and/or other demonstration of the ability to conduct the proposed research. After passing this examination, the student is officially admitted to candidacy for the PhD degree.

Dissertation Defense—As required by the Graduate School, the candidate for the Doctor of Philosophy degree must pass a final oral examination (dissertation defense). The examination consists of a presentation of the student's doctoral research and an assessment by the committee of the research approach, the significance of the findings and the contribution to the advancement of civil engineering.

More information about the Department of Civil Engineering is available at www.ce.clemson.edu or by phone at (864) 656-3000.

Combined BS/MS in Civil Engineering

Civil Engineering undergraduates at Clemson may begin a Master of Science degree program while completing the Bachelor of Science degree and use a limited number of courses to satisfy the requirements of both their undergraduate and graduate degrees. The following requirements apply:

1. Undergraduate students must have a minimum cumulative grade-point average of 3.4 and must have completed the junior year prior to taking graduate courses. Students are required to maintain this minimum grade-point average to continue enrollment in a combined degree program.
2. Graduate Record Examination (GRE) scores are not required to be submitted as part of their Graduate School application; however, applicants are encouraged to submit GRE scores to receive full consideration for graduate fellowships and assistantships upon completion of the BS degree.
3. Up to six semester hours from any 6000- or 8000-level civil engineering courses may be used to satisfy the requirements of the BS degree. These courses may be counted as technical requirements or electives. Undergraduate students are required to have selected one of their technical requirements from the area of transportation systems, geotechnical engineering, or environmental engineering.
4. Since approval of the graduate program of study is required by the student's graduate advisory committee, students should consult with their academic advisors before selecting courses to be included in the graduate program.
5. Students in a combined degree program are conditionally accepted to the graduate program until completion of the BS degree requirements. Students are not eligible for graduate assistantships until full acceptance is granted.

Students interested in this combined degree program should consult the Civil Engineering Graduate Program Coordinator, the undergraduate advisor and the Civil Engineering Honors Coordinator (if applicable). Students pursuing an optional emphasis area in their undergraduate degree program may substitute 6000-level courses for any 4000-level counterpart taken to meet the requirements of an emphasis area. Application for this program should be made by the end of the junior year, but no later than one semester prior to expected BS graduation. Application details are available in the *Undergraduate Announcements*.

Design of Low-Rise Structures Graduate Certificate

The low-rise structures certificate program consists of a set of classes which are relevant to the structural designer who deals with structures that are of one to five stories in height. To enter this certificate program, one must possess a bachelor's degree in Civil Engineering, must be in their senior year with a GPA of 3.0 or greater within a civil engineering program or be able to demonstrate that they have sufficient background to be able to be successful in the program. This background includes a basic knowledge of structural analysis, geotechnical mechanics and civil engineering materials. To receive the certificate the participant must complete any three classes from the following list of courses at a graduate level. A grade of C or better is required for all courses that are part of the certificate program. Classes taken as part of this program may be eligible for applying towards an MS degree in Civil Engineering. Contact the Civil Engineering Department for further details.

CE 6040 Masonry Structural Design 3(3)—online or on campus—Introduction to design of structural elements for masonry buildings. Lintels, walls, shear walls, columns, pilasters and retaining walls are included. Reinforced and unreinforced elements of concrete or clay masonry are designed by allowable stress and strength design methods. Introduction to construction techniques, materials and terminology used in masonry. Preq: CE 3010 or consent of instructor.

CE 6070 Wood Design 3(3)—online or on campus—Introduction to wood design and engineering; properties of wood and wood-based materials; design of beams, columns, walls, roofs, panel systems and connections. Preq: CE 3010 or consent of instructor.

CE 6080 Structural Loads and Systems 3(3)—online or on campus—In-depth discussion of minimum design loads and load combinations. Includes overview of various steel and concrete systems. Discusses practical selection and design issues and design of proprietary building materials and components such as steel joists and diaphragms, etc. Preq: CE 3010 or consent of instructor.

CE 6210 Geotechnical Engineering Design 3(3)—online or on campus—Relationship of local geology to soil formations, groundwater, planning of site investigation, sampling procedures, determination of design parameters, foundation design and settlement analysis. Preq: CE 3210 or consent of instructor.

CE 804 Prestressed Concrete 3(3)—online or on campus—Introduction to the analysis, behavior and design of prestressed concrete members and structures. Covers allowable stress design and strength design of P/C members, shear design, loss of prestress force, design of continuous structures. Preq: CE 4020 or consent of instructor.

COMPUTER ENGINEERING

Master of Science

Doctor of Philosophy

The Computer Engineering program is a combination of computer software, hardware, systems and applications. Areas of specialization include computer systems architecture, communication networks, digital signal processing and intelligent systems. Enrollment is open to graduates in any branch of engineering, computer science, or applied mathematics who have an appropriate engineering and/or science background.

For the MS program, students may write a thesis or follow a non-thesis option. The thesis option requires a total of 30 credit hours including six hours of thesis research. For the non-thesis option, 33 credit hours of coursework must be completed.

The PhD degree requires at least 24 credit hours of graduate coursework beyond the master's degree and 18 research credit hours. Specially qualified candidates with a BS degree may apply for direct entry to the PhD program in any of the above areas. The program of study and hours required beyond the baccalaureate degree are specified by the focus area but must be at least 60 hours including coursework and research credit.

Detailed information is available at www.clemson.edu/ces/ece.

COMPUTER SCIENCE

Master of Science

Doctor of Philosophy

To receive full admission to graduate study in computer science, a student must have taken intermediate-level undergraduate computer science, including computer organization, data structures, operating systems, either algorithms or theory of computation, and either compilers or survey of programming languages; and basic mathematics including discrete mathematics. An applicant with minimal deficiencies may be admitted with prerequisites, while one with several deficiencies may be required to satisfactorily complete prerequisite work as a non-degree student prior to admission as a graduate student.

A candidate for the MS degree must satisfactorily complete an approved program of at least 30 graduate hours. Students may elect one of two options to satisfy the degree requirements: a coursework-only option or a thesis option. The thesis option requires six hours of research credit as part of the 30-hour requirement. Students may take up to six hours of approved courses in areas outside the department.

Although formal course requirements for the PhD degree are minimal, a typical program requires two to four years of study beyond the MS degree. Each candidate is required to pass a comprehensive examination, a dissertation proposal and a defense of the dissertation.

Combined BS/MS in Computer Science

Clemson Computer Science students may begin a Master of Science degree program while completing the Bachelor of Science degree and use a limited number of courses to satisfy the requirements of both their undergraduate and graduate degrees. The following requirements apply:

1. Undergraduate students must have a minimum cumulative grade-point average of 3.4 and must have completed the junior year prior to taking graduate courses. Students are required to maintain this minimum grade-point average to continue enrollment in a combined degree program.

2. Graduate Record Examination (GRE) scores are not required to be submitted as part of the Graduate School application; however, applicants are encouraged to submit GRE scores to receive full consideration for graduate fellowships and assistantships upon completion of the BS degree.

3. Students in a combined degree program are conditionally accepted to the graduate program until completion of the BS requirements. Students with this conditional acceptance are not eligible for a graduate assistantship until the conditional acceptance is removed.

4. Up to nine semester hours from any 6000- or 8000-level computer science courses may be used to satisfy the requirements of the BS degree.

5. Graduate courses taken as an undergraduate may be included in the graduate program of study; however, any 6000-level course that has a corresponding required 4000-level counterpart in the BS or BA in Computer Science or the BS in Computer Information Systems may not be counted toward the MS degree. Since approval of the graduate program of study is required by the student's graduate advisory committee, students should consult their academic advisors before selecting courses to be included in the graduate program.

Students interested in this combined degree program should discuss it with the Computer Science graduate program coordinator and undergraduate program advisor. Students pursuing Senior Departmental Honors should also meet with the Computer Science Honors Coordinator. Application to this program should be made by the end of the junior year but may be made at any time from the junior year until one semester prior to the expected BS graduation. Application details are available in the *Undergraduate Announcements*.

The Computer Science faculty envision students enrolled in this combined degree program will typically complete nine hours of graduate credit while completing their BS degree requirements and complete the remaining requirements for the MS degree in one calendar year or less of graduate study.

DIGITAL PRODUCTION ARTS

Master of Fine Arts

The Digital Production Arts program at Clemson University is a professional degree program aimed at producing graduates who will be sought by the growing electronic arts industry, particularly by those companies engaged in special effects production within the entertainment, film and gaming industries. Because the MFA is a terminal degree in fine arts, students will also be prepared to accept university faculty positions. The program is offered within the Division of Visual Computing in the School of Computing, with significant collaboration with the departments of Art and Performing Arts. It offers a unique blend of instruction, with coursework ranging from the artistic to the technical, all with a strong emphasis on advanced studio methods for visual problem solving.

The Master of Fine Arts in Digital Production Arts is administered by a supervisory board, chaired by the program director, and consisting of five additional faculty members—two from the Division of Visual Computing, two from the Department of Art, and one from the Department of Performing Arts.

Admission and Financial Aid

Applicants are required to submit GRE general test results, a portfolio of artistic work that may include slides or electronic media, and evidence of technical preparation that may include software code samples or appropriate coursework. Some assistantships may be available to especially well qualified applicants. For full consideration for admission and financial aid, applications should be received by January 10.

Requirements for Awarding of a Degree

The degree requires 60 hours, 12 of which are devoted to team-based studio work, six to individual studio work, and six to thesis preparation. This ensures that students have participated in the development of several complete digital production projects, providing material for a professional quality demonstration "reel." Of the remaining 36 credit hours, 0-6 will come from foundation courses, 15 from core courses, three from aesthetic electives, and 12-18 from general electives, aesthetic electives, or core courses. Any required foundation courses are determined at the time of admission. These courses provide students with post baccalaureate work in the fundamentals of computing or the visual arts. A maximum of six hours of foundation courses may be counted towards the degree. For students with strong preparation, the course of study requires two calendar years.

Foundation Courses—Selected from DPA 6000, 6010 (technical), 6020, 6030 (artistic)

Core courses—Selected from ART 8210, CPSC 6040, 8070, 8090, 8150, THEA 6870

Electives—Selected from ART 6050, 6070, 6090, 6110, 6130, 6170, CPSC 6050, 6110, 6140, 8050, 8080, 8170, 8190, 8630, ECE 8470, GC 8010, MUSC 6800, PSYC 8230, THEA 6720, 6970.

Studios—DPA 8600, 8800, 8910

ELECTRICAL ENGINEERING

Master of Engineering

Master of Science

Doctor of Philosophy

Students in Electrical Engineering may direct their programs toward the fields of communication systems and networks, digital signal processing, intelligent systems, applied electromagnetics, electronics, or power and energy systems.

For the MS program, students may write a thesis or follow a non-thesis option. The thesis option requires a total of 30 credit hours, including six hours of thesis research. For the non-thesis option, 33 credit hours of coursework must be completed.

The Master of Engineering is a special degree offered for off-campus students through the University tele-campus program. Degree requirements include 24 credit hours of coursework and six hours of credit for an engineering report. Additional information is available from the Office of Off-Campus, Distance and Continuing Education.

The PhD program requires at least 24 credit hours of graduate coursework beyond the master's degree and 18 research credit hours. Specially qualified candidates with a BS degree may apply for direct entry to the PhD program in any of the above areas. The program of study and hours required beyond the baccalaureate degree are specified by the focus area, but must be at least 60, including coursework and research credit.

Detailed information on program requirements and application procedures is available at www.clemson.edu/ces/ece.

ENGINEERING AND SCIENCE EDUCATION

Doctor of Philosophy

The PhD program in Engineering and Science Education is a nationally unique graduate program in science, technology, engineering, and mathematics (STEM) education research. The Department of Engineering and Science Education (ESE) in the College of Engineering and Science is the only department in the country that includes both engineering education and science education in a college of science and engineering. As such, it includes faculty who are experts in several areas of science education and engineering education, and who have active research programs in these fields. Students in this program are exposed to a wide breadth of STEM education research under current investigation and are prepared to interface between the development of new theory in STEM education and the implementation of new research findings in practice. This discipline-based education research (DBER) combines knowledge of teaching and learning with deep knowledge of discipline-specific science content. It describes the discipline-specific difficulties learners face and the specialized intellectual and instructional resources that can facilitate student understanding.

The objectives of the ESE PhD program are to prepare students for academic careers in STEM education, science education policy in higher education or informal education institutions, or a range of other careers that require a deep disciplinary knowledge coupled with understanding of the factors that affect student learning, retention, and inclusion in STEM. Students who enroll in this program are expected to be content experts in a STEM discipline with at least a Master's degree in their content area of expertise. Graduates from this program are prepared to become faculty in traditional departments of engineering or science, as well as STEM education departments. They are prepared to lead curricular and pedagogical reform at the post-secondary level as well as conduct research in the burgeoning fields of STEM education research.

Engineering and Science Education Certificate

The Certificate in Engineering and Science Education is designed for graduate students who want to prepare for an academic career, who wish to further their understanding of the education process in engineering and science, or who are interested in engineering and science education research. The program includes a range of courses in three main areas: Pedagogy, Professional Preparation, and Research Methods, as well as a practicum and attendance at a seminar series, for a total of 11 credits as outlined below. Additional information is available at www.clemson.edu/ese/.

Pedagogy—Three credits: CES 8200 or 8210 or ED 9550

Professional Preparation—Three credits: CES 8250, 8750, or 8880

Elective—Three credits: CES 8710, EDF 8080 or 8780, EXST 8020, PSYC 8110 or 8330

Practicum—One credit: CES 8610

Seminar—One credit: CES 8000

ENVIRONMENTAL ENGINEERING AND SCIENCE

Master of Science

Doctor of Philosophy

Environmental engineering and science is concerned with the characterization and control of environmental pollution. Emphasis is placed on applying the fundamental principles of the basic and engineering sciences through research and design to the solution of environmental problems in natural and engineered systems.

The MS program builds on a student's previous engineering or science background. Students with a baccalaureate degree in any branch of engineering, as well as chemistry, physics, geology, biology, or related majors with a strong mathematical background may be admitted to the program.

Students may specialize in one of six areas: environmental health physics; environmental process engineering; nuclear environmental engineering and science; sustainable systems and environmental assessment; subsurface and surface processes; or environmental chemistry. Research master's degree

candidates must complete 24 hours of coursework and six hours of research culminating in the presentation of a satisfactory thesis for MS candidates. The MS non-thesis option, which requires 30 hours of coursework including three hours of independent study, is available. The coursework for all master's students must include EES 8020, 8430, and 8510. A final examination is required of all master's candidates.

The PhD program provides the student with a comprehensive background in the fundamental aspects of environmental engineering and science. The major field of study is generally interdisciplinary in nature, consisting of at least 30 hours of coursework beyond the MS degree in several areas of engineering and the basic sciences. Each student's curriculum and research program is tailored to suit his/her personal and professional goals. Qualifying, comprehensive and final examinations are required. No foreign language is required.

Combined BS in Biosystems Engineering/MS in Environmental Engineering and Science

Undergraduate Biosystems Engineering majors who have earned a grade-point average of 3.4 or above and completed 90 credit hours can begin work toward a Masters of Science in Environmental Engineering and Science while completing a Bachelor of Science degree. The undergraduate curriculum allows up to nine credits of mutually acceptable graduate course credits to satisfy requirements of both degrees. Details are available in the Biosystems Engineering Undergraduate Handbook, which can be found at www.clemson.edu/ces/ees.

Combined BS in Chemical Engineering/MS in Environmental Engineering and Science

Clemson Undergraduate Chemical Engineering majors who have earned a grade-point average of 3.4 or above and completed 90 credit hours can begin work toward a Master of Science in Environmental Engineering and Science while completing a Bachelor of Science degree. The undergraduate curriculum allows up to nine credits of mutually acceptable graduate course credits to satisfy requirements of both degrees. Details are available in the ChBE Undergraduate Handbook, which can be found at www.clemson.edu/ces/chbe.

Combined BS in Environmental Engineering/MS in Environmental Engineering and Science.

Clemson Undergraduate Environmental Engineering majors who have earned a grade-point average of 3.4 or above and completed 90 credit hours can begin work toward a Master of Science in Environmental Engineering and Science while completing a Bachelor of Science degree. The undergraduate curriculum allows up to nine credits of mutually acceptable graduate course credits to satisfy requirements of both degrees. Details are available in the Undergraduate Handbook, which can be found at www.clemson.edu/ces/ees.

HUMAN CENTERED COMPUTING

Doctor of Philosophy

To receive full admission to graduate study in human centered computing (HCC), a student must have completed an undergraduate degree and have taken computer programming courses through data structures. An applicant with minimal deficiencies may be admitted with prerequisites, while one with several deficiencies may be required to satisfactorily complete prerequisite work as a non-degree student prior to admission as a graduate student. Although formal course requirements for the PhD degree are minimal, a typical program requires two to four years of study beyond the MS degree. Each candidate is required to pass a comprehensive examination, a dissertation proposal and a defense of the dissertation.

Admission and Financial Aid

Applicants are required to submit GRE general test results. Applicants are accepted for both fall and spring semesters. Assistantships are available for especially well qualified applicants.

Requirements for Awarding of a Degree are:

1. 60 credit hours beyond the Bachelors degree
2. A portfolio (a combined version of the PhD qualifying and comprehensive exams)
3. Competency in four topic areas, typically demonstrated by coursework: Computing, People, Research Methods and Design, Cognate Area
4. Ability to pursue research, typically demonstrated by producing a research publication, which may be co-authored with the student's advisor
5. Proposing, completing and defending a dissertation.

Students are required to have a strong computing or computation core with training in areas that emphasize people or the human condition and research methods for studying people, technology, policy and/or information. Each student is required to take a first course in the fundamentals of HCC for three hours. Students are required to take 12 hours in the computing or computer science track from 6000- or 8000-level computer science courses, six hours from a people or human condition track consisting of courses from psychology, human factors, policy, etc., and six hours of research methods. Students are required to take a series of at least nine hours in a cognate or specialty domain under the advisement of their dissertation research advisor with the approval of the HCC graduate program committee. Students are also required to take six hours of pre-dissertation (pre-portfolio) research, CPSC 8880 Directed Projects in Computing. Students also take 18 hours of dissertation research (CPSC 9910).

HYDROGEOLOGY

Master of Science

The Master of Science in Hydrogeology is an interdisciplinary program that focuses on groundwater geology and subsurface remediation and draws on the expertise of faculty in the Department of Environmental Engineering and Earth Sciences. The curriculum is structured to impart a strong background in field experimentation complemented by laboratory studies and computer modeling.

Candidates for the Master of Science degree in Hydrogeology should have a baccalaureate degree in the geosciences; however, students having strong undergraduate backgrounds in other fields of science or related engineering disciplines may be admitted but will be required to correct deficiencies in their geological education during the first year. Specifically, GEOL 1010/1030, 2050, 3020, 3130, and 3160 (or an equivalent) are required. Students entering this program should also have a strong mathematics background; normally, two semesters of calculus are required and a third semester is recommended.

The degree requires 24 hours of coursework and six hours of thesis research. Candidates must write a thesis based on original research and defend it in an oral examination. Students may pursue a variety of research projects in hydrogeology and related areas such as environmental geochemistry, geophysics, sedimentology/stratigraphy and multiphase flow modeling. A non-thesis option is available for students who meet requirements specified in the department handbook and who are approved by department faculty; it requires 30 hours of coursework and a comprehensive examination.

All candidates must take at least six core courses from a department-approved list, including a modeling course (GEOL (EES) 8080 is recommended), a field course (GEOL 8750 is recommended) and a minimum of three other 8000-level geology courses.

INDUSTRIAL ENGINEERING

Master of Engineering

Master of Science

Doctor of Philosophy

Industrial engineers design, develop and improve integrated systems that include people, materials, information, equipment and energy. In addition to these issues, graduates learn to address communications throughout the organization while completing their specialized education. Work at the doctoral level includes independent research, dissemination of findings and preparation for research and teaching careers.

Students with baccalaureate degrees in engineering, the physical sciences, mathematics, or related majors with a strong mathematical background may be admitted into the program. Entering graduate students are assumed to have competence in calculus, probability and statistics, calculus-based physics, and computing. Students admitted without this background will be required to complete successfully additional courses, some of which may not carry graduate credit.

The Master of Engineering program is an interdisciplinary program that focuses on capital projects supply chain engineering directed to working professionals. It is offered in collaboration with the Department of Management and the Department of Civil Engineering. The program is available fully in a distance learning format and courses are delivered asynchronously. Courses required in the program are IE 8500, 8510, 8520, 8530, 8540, 8550, 8560, 8570, 8580, and 8590, for a total of 30 hours of graduate coursework.

Master of Science students may select a thesis or non-thesis option. Students in the thesis option must complete a minimum of 30 hours of graduate coursework, including six credits of thesis research. Students in the non-thesis option must complete a minimum of 33 hours of graduate coursework.

The PhD program provides the student with a comprehensive knowledge of the field of industrial engineering and a mastery of the methods of research. Additional information is available at www.ces.clemson.edu/ie/.

Undergraduates Involved in Graduate Programs

Undergraduate students majoring in Industrial Engineering at Clemson may take courses for graduate credit in two ways:

1. Seniors with a minimum cumulative grade-point average of 3.0 may apply to take graduate courses while continuing to pursue their bachelor's degrees. If successfully completed, these courses may be eligible to be counted towards a master's degree. Students selecting this option *will not* be allowed to count these courses towards the bachelor's degree. (See Graduate School form GS-6 for details.)
2. Students with a minimum cumulative grade-point average of 3.4 may apply to take up to 12 semester hours of courses and have them count toward *both* the bachelor's and master's degrees in Industrial Engineering. To take advantage of this opportunity, students must have a minimum cumulative grade-point average of 3.4, must have completed the junior year and must have been admitted to the graduate program prior to enrolling in courses. Courses eligible for this program include IE 6520, 6560, 6600, 6850, 6870, 6890, 6910, 8000, 8020, 8030, 8040, 8090, 8110, 8120, 8130, 8600, 8650, 8710, 8800, 8860, 8880, and 8930. The Undergraduate Curriculum Committee has preapproved these classes as acceptable technical and free electives in a student's BS program. Determination of whether the classes count towards the master's degree will be made by the student's advisory committee after he/she becomes a full-status graduate student. Students should notify the Graduate Coordinator in writing that they wish to be considered for this program. Enrollment guidelines and procedures can be found in the *Undergraduate Announcements*.

In both programs, the decision whether courses count towards the bachelor's degree is determined by the undergraduate committee and whether they count towards the master's degree is determined by the advisory committee that is formed after the student becomes a full-status graduate student.

Students should consult with their undergraduate advisor, the Graduate Coordinator and/or the Honors Coordinator before enrolling in graduate courses.

MATERIALS SCIENCE AND ENGINEERING

Master of Science

Doctor of Philosophy

Materials Science and Engineering is concerned with the production, properties and microstructure of the materials that are often the primary limitation to the advancement of modern technology. Emphasis is placed on applying the fundamental principles that govern the development of structural properties of materials to produce the desired mechanical, electrical, optical and other physico-chemical characteristics.

The Materials Science and Engineering program prepares graduate students to apply science and engineering principles to design new materials and solve problems related to the scientific understanding and characterization of materials behavior and the development of new technologies necessary for the processing and manufacturing of different materials and related products. The curriculum provides for specialization in metallurgy, glasses and ceramics, polymeric materials, and fiber-based materials, including electronic materials, biomaterials, textile and composite materials.

Students with a baccalaureate degree in any branch of engineering, as well as chemistry, physics and biology majors with strong mathematical backgrounds, may be admitted to the program. The program is designed to produce engineers and scientists whose degrees represent specialization coupled with a broad foundation in all materials.

Master's degree candidates must complete 24 credit hours of coursework and six credits of research. Of these 24 credit hours, a maximum of 12 credits may be taken from 6000-level courses. Each master's degree student must take MSE 8260 and 8270.

The Doctor of Philosophy degree provides students with a comprehensive foundation in Materials Science and Engineering. The major field of study is generally interdisciplinary in nature, consisting of coursework in several areas of engineering and science. Comprehensive and final examinations are required. No foreign language is required, but proficiency in one is recommended.

Students should consult their advisors for course requirements. All MS and PhD students must enroll in MSE 8000 every semester.

MATHEMATICAL SCIENCES

Master of Science

Doctor of Philosophy

Entering students are expected to have courses in linear algebra, differential equations, a computer language and statistics.

For the master's program, both thesis and non-thesis options are available. The curriculum for both options includes foundation courses (advanced calculus, modern algebra, probability and discrete computing—courses often taken prior to entering the master's program); a breadth requirement (a course from each of algebra, analysis, computing, operations research and statistics, plus one additional course in operations research or statistics); and a concentration area (six courses selected to define an identifiable specialty area). Every student's program is required to include at least one course, possibly chosen from outside the Department of Mathematical Sciences, that emphasizes mathematical modeling. A minimum of 36 graduate credit hours is required for the master's degree. In addition, students in the non-thesis option are required to complete a one-credit-hour project course.

Graduate students in the Department of Mathematical Sciences have at least three opportunities to participate in international cooperative programs. The first is an exchange program with the Department of Mathematics at Kaiserslautern University in Germany. Students can obtain two MS degrees, one from their home university and one from the host university. The second program is a two and one half month summer program, for Clemson math sciences students who have completed their first year of graduate study, in the Center for Industrial Mathematics at the University of Bremen in Germany. Students earn a certificate of participation from Bremen University. The third exchange program is with the Institute of Machine Sciences at the Russian Academy of Sciences (IMASH) in Moscow, Russia. Clemson University graduate students who have completed two semesters of study are eligible to participate in the program at IMASH for either a full semester or for a shorter, summer program. Academic work passed at IMASH will normally be accepted for credit towards the MS or PhD degree at Clemson. More information about each of these programs is available in the mathematical sciences graduate student handbook at: <http://www.clemson.edu/ces/math/graduate/index.html>.

Students in the doctoral program are expected to satisfy the master's program requirements prior to receiving their doctorate. Including master's study, a doctoral program must have two courses from each of the major areas of the mathematical sciences (algebra, analysis, computing, operations research and probability/statistics) and generally consists of 60 credit hours of graduate coursework. Students are admitted to candidacy for the PhD degree upon successful completion of a preliminary examination and the comprehensive examination. The preliminary examination consists of tests in three areas chosen from algebra, analysis, computing, operations research, statistics and stochastic processes. The comprehensive exam assesses the student's readiness to perform independent research and competence in advanced graduate material. The PhD program must include both a concentration area and a supporting area. Additional information is available at www.math.clemson.edu/.

Mathematical sciences courses at the 7000-level are applicable to master's degree programs in the School of Education only.

MECHANICAL ENGINEERING

Master of Science

Doctor of Philosophy

Enrollment in the MS and PhD programs is open to students with degrees in physics, applied mathematics, or any branch of engineering.

Students in the MS degree program may choose the thesis or non-thesis option. Students in the thesis program must complete 30 credit hours of coursework, including six hours of thesis research and write a thesis. Students in the non-thesis program must complete 33 credit hours of coursework. Students in the PhD program must pass a qualifying exam, complete 18 hours of dissertation research and defend a dissertation.

Programs may be selected with concentrations in mechanical and manufacturing systems design (design, dynamics, vibrations, and control, materials and manufacturing), thermal/fluid sciences (computational fluid dynamics, fluid mechanics, heat transfer, thermodynamics and energy systems), or engineering mechanics (solid mechanics, composite materials, numerical computation methods and experimental methods).

Combined BS/MS Mechanical Engineering

Undergraduates at Clemson University may begin their Master of Science (MS) degree program in Mechanical Engineering while completing their Bachelor of Science (BS) degree and use a limited number of courses to satisfy the requirements of both their degrees. The following are required:

Undergraduates must have an overall 3.4 GPA or better and must have completed their junior year courses prior to taking graduate courses for the BS/MS program.

1. Graduate Record Examination (GRE) scores are not required as part of the initial application. However, upon final completion of the BS degree, satisfactory GRE scores are required for final acceptance into the graduate degree program. GRE scores help determine graduate assistantships and fellowships.
2. Up to 12 semester credit hours from any 600-800 level Mechanical Engineering courses may be used to satisfy the requirements of their BS degree and also be used for their MS degree. Technical electives may be used.
3. Since approval of the plan of study (GS2 form) by the student's graduate advisory committee is required, students should consult with their academic advisors before selecting courses to be included in their graduate program.
4. Students in the combined degree program are conditionally accepted to the MS degree program until completion of their BS degree requirements. Students with this conditional acceptance are not eligible for a graduate assistantship until the conditional acceptance is removed.

Undergraduate students who are interested in the combined program should discuss it with their undergraduate academic advisor and the Chair of the Graduate and Research Committee. Applications for this program should be made during the junior academic year. Students should apply through the regular graduate school process. Currently, a paper application is required, with the following written at the top of the form: "Combined BS/MS Program".

Combined MS in Mechanical Engineering/MBA

Students may enroll in both the MS in Mechanical Engineering and the Masters of Business Administration (MBA) programs concurrently. Up to 1/6 of the total graded course credit hours may be counted towards both degree programs. The dual program is meant to be completed in 2.5 years.

PHOTONIC SCIENCE AND TECHNOLOGY

Master of Science Doctor of Philosophy

The Photonic Science and Technology program, jointly administered by the Center of Optical Material Science and Engineering Technologies (COMSET), the College of Engineering and Science, and the Graduate School, offers interdisciplinary graduate degrees involving science, engineering, communications, entrepreneurship, business, and leadership. The program prepares individuals with the fundamentals of the science and engineering of light and specific interactions targeted for relevance to the research areas of their home academic department(s) and collaborative co-advised graduate committees.

Students with backgrounds in any relevant science or engineering discipline who have earned an undergraduate degree from an accredited college or university may be accepted. Undergraduate prerequisite or corequisite courses may be required for applicants with undergraduate degrees in nonengineering or nonscientific disciplines.

Acceptance is recommended to the Graduate School by COMSET faculty review based on records of academic achievements, including grades from previous programs and GRE scores, and other appropriate professional accomplishments.

Each degree program is planned individually to augment the student's previous engineering and science background with adequate breadth in science or engineering and specialization in an area of photonic science or engineering. Coursework includes photonic science and technology and related engineering and sciences currently offered in the member departments and schools of COMSET.

Candidates for the MS degree are required to complete a minimum of 30 credit hours, including 12 credit hours of core courses, three credit hours of PST seminar, nine credit hours of elective courses, and an additional six credit hours of thesis research, and complete an acceptable thesis.

Candidates for the PhD degree are required to complete a minimum of 30 credit hours, including nine credit hours of core courses, three credit hours of PST seminar, nine credit hours of elective courses, and an additional 15 credit hours of dissertation research, and complete an acceptable dissertation.

PHYSICS

Master of Science Doctor of Philosophy

Graduate studies in physics and astronomy may be pursued by well-prepared students in the physical and mathematical sciences or engineering. As the basic physical science, physics offers unique intellectual opportunities. Theoretical, experimental, or computer-simulated studies of the physical universe, ranging from cosmology to quantum physics, and from atmospheric phenomena to biomolecular interactions, are available.

Normally, students are directly accepted into the PhD program. The ultimate goal is to carry out and publish independent scientific work in a chosen research field. Coursework required for the PhD includes the graduate core curriculum consisting of PHYS 8110, (ME) 8150, 8210, 8410, 9510, 9520 (or their equivalents at Clemson University or elsewhere as approved by the department faculty), and 12 credit hours of elective 8000-9000-level physics, astronomy or other graduate level courses (excluding PHYS 8910/9910), which must be approved by the student's advisory committee. PHYS/ASTR 8750 courses may be used to satisfy this elective requirement with approval by the faculty. The purpose of these electives is to provide a well-rounded physics education and additional coursework necessary for the student's research area.

Unless they receive a deferral from the Department faculty, students must take the written PhD qualifying examination on topics from the core curriculum no later than their third semester. Students are offered two opportunities to pass the exam, which is typically offered twice annually. After passing the written PhD qualifying examination, students shall have selected a research area and faculty advisor and prepare for the oral PhD qualifying examination in which they present and defend their planned dissertation topic and research program. This oral examination must be completed within 12 months after passing the written examination. At least three weeks prior to the graduation at which the candidate expects to receive the PhD degree, a final oral examination on the dissertation must be successfully completed.

Students not passing the written PhD qualifying examination after two attempts may, with the approval of the Department faculty, complete an MS degree. Such students, and those accepted directly into the MS program, and those seeking an en-route M.S. degree usually choose to prepare a research thesis, although a non-thesis option is available. For the thesis option, 30 credit hours, including six credit hours of PHYS 8910, and a final oral examination on the general area of study and thesis defense are required. In the non-thesis option, 36 credit hours are required, including six credit hours of PHYS 8900.

A written report must be submitted on the directed studies. A final oral examination on the general area and directed activities completes the requirements for the non-thesis option.

COLLEGE OF HEALTH, EDUCATION AND HUMAN DEVELOPMENT

The College of Health, Education and Human Development offers advanced degrees in Administration and Supervision; Counselor Education; Curriculum and Instruction; Educational Leadership; Healthcare Genetics; Human Resource Development; Literacy; Middle Level Education; Nursing; Parks, Recreation and Tourism Management; Secondary Education; Special Education; and Youth Development Leadership.

The PhD degree is offered in Curriculum and Instruction; Educational Leadership; Healthcare Genetics; and Parks, Recreation and Tourism Management. The MS degree is offered in Nursing; Parks, Recreation and Tourism Management; and Youth Development Leadership. The College also offers professional degree programs leading to the Master of Arts in Teaching; Master of Education; Master of Human Resource Development; and Specialist in Education degrees. The College of Health, Education and Human Development and the College of Agriculture, Forestry and Life Sciences cooperatively offer a Master of Agricultural Education program.

The graduate programs focus on preparing students for leadership positions in educational, healthcare, governmental and business organizations. Clinical and field experiences are common in many graduate programs. Often programs join with local, state and federal agencies to provide real-world experiences and research projects for faculty and students. Some programs and courses are offered off campus and in the evening to accommodate the schedules of public schools, higher education, healthcare institutions, businesses and other organizations.

The College of Health, Education and Human Development offers graduate courses in education and nursing at various off-campus locations across the state. Off-campus course schedules for fall, spring and summer offerings for school personnel, school districts and other South Carolina agencies are published by the Office of Off-Campus, Distance and Continuing Education. In addition, courses are taught by contract with local school districts in the Clemson University service region. Courses are offered in athletic leadership and health to provide electives for students in other areas.

EUGENE T. MOORE SCHOOL OF EDUCATION

The Eugene T. Moore School of Education is a transformative leader in systematically improving education, beginning at birth. The mission is to engage students in high quality applied research, professional learning, and immersive experiences. We prepare culturally competent scholar practitioners who promote the growth, education, and development of all individuals, with emphasis on underperforming schools and underserved communities across the state and nation. The School of Education prepares teachers for P-12 schools and higher education, and counselors, practitioners and leaders for P-12 schools, agencies and organizations.

The Eugene T. Moore School of Education offers advanced degrees in Administration and Supervision; Counselor Education; Curriculum and Instruction; Educational Leadership; Human Resource Development; Literacy; Middle Level Education; Secondary Education; Special Education; and Teaching and Learning.

The PhD degree is offered in Curriculum and Instruction and Educational Leadership (P-12 or Higher Education). The Master of Arts in Teaching is offered for Middle Level Education and Secondary Education (mathematics and science). The Master of Education is offered in Administration and Supervision; Counselor Education (School Counseling, Clinical Mental Health Counseling, Student Affairs); Literacy; Special Education; and Teaching and Learning. A specialist degree is offered in Administration and Supervision and Counselor Education. A Master of Human Resource Development is also offered. The School of Education and the College of Agriculture, Forestry and Life Sciences cooperatively offer a Master of Agricultural Education program.

The graduate programs focus on preparing students for leadership positions in education and other organizations. Clinical and field experiences are common in many graduate programs. Some programs and courses are offered off campus and in the evening to accommodate the schedules of public schools, higher education, and other organizations. Off-campus course schedules for fall, spring and summer offerings for school personnel, school districts and other South Carolina agencies are published by the Office of Off-Campus, Distance and Continuing Education. In addition, courses are taught by contract with local school districts in the Clemson University service region.

Graduate programs in Administration and Supervision, Literacy, Middle Level Education, School Counseling, Secondary Education, Special Education, and Teaching and Learning are accredited by the Council for the Accreditation of Educator Preparation (CAEP), the State of South Carolina and national specialized professional associations. Counselor education programs in Clinical Mental Health and School Counseling are accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

ADMINISTRATION AND SUPERVISION

Master of Education

Specialist in Education

Master of Education

The Master of Education degree in Administration and Supervision prepares individuals as elementary or secondary school administrators or supervisors. The program provides both a theoretical and field-based foundation in educational leadership with a focus on leading instructional improvement for the benefit of all P-12 students. The program is approved by ELCC.

Admission Requirements

For admission, individuals must have a baccalaureate degree from a regionally-accredited institution and a minimum of one year of teaching experience. A complete application package should include (1) on-line application, (2) unofficial transcripts from previous institutions (cumulative minimum undergraduate grade-point average of 2.70 on the last 60 hours), (3) two recommendations—one from immediate prior supervisor, (4) current résumé, (5) copy of teaching and/or administration certificate and (6) Competitive GRE score report of verbal, quantitative and writing assessments. (Acceptable GRE scores are considered holistically with the student's background and potential success in graduate school.)

Applicants whose native language is not English must also submit TOEFL or IELTS scores.

If requested by the program coordinator, an interview may be required prior to an admission decision.

Prospective students are encouraged to apply two months prior to the beginning of the term in which they wish to enroll.

Students who anticipate applying to a degree program may not transfer more than 12 credit hours as a nondegree student or from another institution without program coordinator approval. Nondegree students should consult an advisor before enrolling in any course.

Program Requirements

This program incorporates the academic requirements for certification as a principal and supervisor in South Carolina. Thirty-six hours of graduate credit are required.

Students must complete the following courses: EDL 7000, 7050, 7150, 7200, 7250, 7300, 7350, 7400, 7450; 7500 or 7550; 7510 or 7560, and 8390.

Specialist in Education

The Education Specialist degree in Administration and Supervision consists of 30 credit hours and is designed to lead to certification in South Carolina as either a building level (principal) or district level (superintendent) leader. Only students who currently hold a master's degree are eligible to apply to the program. The program is approved by ELCC.

Admission Requirements

For admission, individuals must have a master's degree from a regionally-accredited institution.

A complete application package should include (1) online application, (2) undergraduate and graduate transcripts (cumulative minimum grade-point average of 3.25 on graduate work), (3) two recommendations—one from immediate prior supervisor, (4) current résumé, (5) copy of teaching and/or administration certificate and (6) Competitive GRE score report of verbal, quantitative and writing assessments. (Acceptable GRE scores are considered holistically with the student's background and potential success in graduate school.)

Applicants whose native language is not English must also submit TOEFL or IELTS scores.

If requested by the program coordinator, an interview may be required prior to an admission decision.

Prospective students are encouraged to apply two months prior to the beginning of the term in which they wish to enroll.

Program Requirements

Students who wish to receive building level (principal) certification must complete the courses offered in the Master of Education, with the exception of EDL 7050 and EDL 8390. Students who have not taken an introductory research course, are required to take EDL 8390. Students who wish to receive district level (superintendent) certification must complete the following courses: EDL 8050, 8100 or 9500, 8150, 8200, 8300, 8400, 8500, 8510, 8850, and 9250.

COUNSELOR EDUCATION

Master of Education Specialist in Education

The Counselor Education program prepares students in one of the following specialty areas: clinical mental health counseling (CACREP- accredited), school counseling (CACREP-accredited), or student affairs. Graduate education in the Counselor Education program helps students realize their potential as practicing counselors and/or administrators; engage in professional relationships; and develop a set of meaningful professional values. To this end, the program reflects current knowledge from lay and professional groups concerning current and projected counseling and human development needs of a pluralistic society. Cultural considerations are emphasized so the experiences provided will be rewarding and useful in today's ever-changing society.

The faculty of the Counselor Education program model the values of acceptance and human uniqueness to all students so they incorporate these values into their practice. To recruit, train and retain competent counseling and other helping practitioners, faculty members attempt to develop the following in each graduate: respect for the dignity and worth of the individual; commitment to the fulfillment of human potential; an understanding of educational and counseling processes; knowledge in a particular field of counseling, ethical competencies; commitment to inquiry; self-awareness; advocacy dispositions.

Clemson University recognizes laboratory settings and field-based experiences as providing the student with a realistic perspective on the field; an integrating

experience for knowledge and skills acquired in the classroom; a situation that maximizes self-awareness, self-direction and self-evaluation; and feedback on his/her progress and development.

Clemson University acknowledges the importance of close supervision in practica or internship placements as a means of maximizing student training and preventing inadvertent harm to clients. Practica and internships are designed so the focus and intensity of supervision will change as students acquire competent beginning, intermediate and advanced skills. The University and site supervisors provide each supervisee with periodic performance and evaluation feedback throughout the supervised experience. At no point is any student to engage in any field-based practicum experience without the permission of the major advisor.

Practica for the clinical mental health and school counseling emphases require 100 hours, and internships require 600 hours of on-site counseling activities and 2.5 hours per week of supervision. The Student Affairs emphasis requires one practicum of 100 hours and two internships of 150 hours each.

Each student is assigned a major advisor chosen from the Counselor Education faculty. Students are required to meet with their advisor at least once a semester to ensure appropriate course sequencing.

Students in the clinical mental health counseling and school counseling programs should plan to take the written final examination during their final semester in the program, with approval from their advisor.

Admission Requirements

Applicants must have an undergraduate grade-point average of 3.0 on a 4.0 scale (last 60 hours of undergraduate coursework). A complete application package should include an online application, competitive GRE scores, personal statement, (responses to five program specific questions), and two letters of recommendation. Applications to the Clinical Mental Health Counseling Emphasis Area are due by February 1 for summer and fall admission. The Clinical Mental Health Counseling Emphasis Area does not admit students for spring. Applications for the School Counseling Emphasis Area are due February 1 for summer and fall admission. School Counseling does not admit students for spring. Applications for admission to the Student Affairs Emphasis Area are due by February 1 for summer and fall admission; and by October 1 for spring admission. Spring admission for Student Affairs is for part-time enrollment only.

The Student Affairs graduate program is designed for students who obtain a graduate assistantship in a student affairs or student services functional unit; these assistantships are competitive and are typically obtained through the CUGARS process. The program is also designed for professionals already working in higher education settings who intend to maintain their full-time student affairs/student services employment while they complete their coursework. Because the size of each cohort is determined by (a) available assistantships and (b) faculty capacity, applicants who do not receive an assistantship with Clemson University or who are not full-time employees in higher education settings

should NOT expect to have a space in the cohort. The program faculty feel strongly that students' academic coursework should be accompanied by hands-on, concurrent work experience, as students' practitioner experience is constantly referenced through the program curriculum.

Additional information is available at www.clemson.edu/hehd/departments/education.

Testing Requirements

Students in all Counselor Education programs take written final examinations, which are graded on a pass/fail basis. Passing this examination is required for the degree. With the advisor's permission, students are eligible to take the final examination. At least two committee members must pass the student. If a student does not pass the written final examination, the major advisor may recommend a second written or oral examination. This recommendation may be during the same semester or in the following one. If the student fails the written examination twice, he/she will be removed from the program.

Clinical Mental Health Counseling Emphasis

Students with an emphasis in Clinical Mental Health Counseling will demonstrate an ability to work effectively with community and other agency personnel; an ability to meet qualifications for certification or licensure; understanding and skills related to counseling needs in the environment in which they choose to work; a high degree of self-understanding; an ability to communicate effectively with diverse cultural groups; a knowledge about counseling across the lifespan; human evaluation and research skills; a high degree of sensitivity and acceptance of others' behavior; an awareness of responsibilities specific to a variety of community agencies; and ethical practices. Additional information is available at www.clemson.edu/hehd/departments/education/academics/graduate/CMH/index.html.

The Clinical Mental Health Counseling Emphasis requires 60 credit hours culminating in both a Master's Degree (M.Ed.) and an Educational Specialist Degree (Ed.S.). The curriculum requirements are as follows:

Area of Specialization—45 credit hours: EDC 8050, 8100, 8110, 8120, 8130, 8140, 8150, 8160, 8180, 8210, 8220, 8230, EDF 8010, EDL 8390, and three elective hours as approved by advisor.

Field Experiences—15 credit hours of EDC 8360, 8460. Students must complete 21 credit hours before participating in internship.

School Counseling Emphasis

Students with an emphasis in School Counseling will demonstrate an ability to work effectively with students, teachers, administrators and other members of the community, as well as a high level of expertise in counseling appraisal, theory, skills and intervention techniques.

This program is dedicated to preparing school counselors who possess the skills and dispositions to work effectively with diverse populations, to engage in data-driven practices, and to be leaders and advocates in their schools. Students completing Clemson's program in school counseling are eligible for certification

in South Carolina as elementary and/or secondary school counselors. Additional information is available at: www.clemson.edu/hehd/departments/education/academics/graduate/MEdSC/index.html.

The School Counseling Emphasis requires 60 credit hours culminating in both a Master's Degree (M.Ed.) and an Educational Specialist Degree (Ed.S.). The curriculum requirements are as follows:

School Counseling Core—24 credits: EDC 8100, 8110, 8120, 8130, 8140, 8150, EDF 8010, EDL 8390

Area of Specialization—21 credits: EDC 8010, 8070, 8180, 8510, EDSP 8530; and six elective hours selected from a department-approved list.

Field Experiences—15 credits: EDC 8300, 8410

Testing Requirements

In addition to successful completion of the written final examination, students must pass the Praxis II Subject Assessment test in Professional School Counseling. The score must be reported to Clemson and must be recorded in the student's file before certification verification will be sent to any State Department of Education.

Student Affairs Emphasis

Students with an emphasis in Student Affairs will demonstrate the ability to work effectively with faculty, students, administrators and other members of the academic community; preparation for employment in higher education settings in a variety of roles; the ability to act as consultants throughout the higher education setting; understanding and skills related to counseling and developmental needs at the post-secondary level; a high degree of self-understanding; the ability to communicate effectively with all cultural groups; a high degree of sensitivity and acceptance of diversity in thought and action; an awareness of the responsibilities of student affairs practitioners to the developmental needs and maintenance of quality experiences for students, faculty members, administrators and staff; and ethical practice. Additional information is available at <http://www.clemson.edu/hehd/departments/education/academics/graduate/MEdSA/index.html>.

The Student Affairs Emphasis requires 42 credit hours arranged as follows:

Core Courses—nine credit hours: EDC 8100, 8110, 8140 and three elective hours

Field Experiences—nine credit hours: EDC 8340, 8440

Specialization Courses—24 credit hours: EDC 8030, 8040, 8060, 8080, 8090, 8190, EDL 7650, 8550

Testing Requirements

In addition to successful completion of the final examination, students also complete an electronic portfolio as part of the program requirements.

Specialist in Education

The Education Specialist (EdS) degree in Counselor Education is designed for individuals who already possess a master's degree in counseling and who seek to further their knowledge and skills in counseling. Students entering this program must choose either a School Counseling emphasis or a Clinical, Mental Health counseling emphasis. Most students will com-

plete the program on a part-time basis, taking 1 or 2 classes per semester, including summers. All students must complete the program in six years. Courses are taught in the evenings, Monday through Thursday, at 4:30 or later at either the University Center in Greenville or on Clemson's main campus.

Admissions Requirements

A complete application package includes (1) online application including essay questions, (2) two letters of recommendation, (3) undergraduate transcripts, (4) Competitive GRE scores within 5 years, and (5) Official TOEFL/IELTS scores for International Students. The deadline for applications to the program is February 1. Only complete application packets are considered for admission.

Applications are reviewed immediately after the submission deadline on February 1 and interviews are conducted toward the end of month with initial admission decisions usually communicated by the middle of March.

School Counseling Emphasis Requirements

Individuals choosing this emphasis typically are interested in completing requirements for school counseling certification or in advancing their knowledge and skills in school counseling to be eligible for salaries at the master's +30/EdS pay rate. Students in this emphasis must complete a minimum of 30 credits, choosing courses as follows:

1. Complete any of the courses currently required for school counselor certification not previously completed
2. Complete elective courses approved by the advisor and based on the student's professional goals
3. Individuals seeking initial school counselor certification must successfully complete a written final exam and receive a passing score on the Praxis II Exam in Professional School Counseling during their final year in the program.

School Counseling Certification Requirement Courses – EDC 8010, 8070, 8100, 8110, 8120, 8130, 8140, 8150, 8180, 8510, 8300, 8410, EDF 8010, EDL 8390, EDSP 8530.

Counselor Education Elective Courses – EDC 8070, 8160, 8170, 8210, 8220, 8230, 8240, 8400, 8850, 9150, 9210.

Clinical Mental Health Counseling Emphasis

Individuals choosing this emphasis typically are interested in completing requirements for counselor licensure (i.e., LPC) or advancing their knowledge and skills in mental health counseling. Students in this emphasis must complete 30 credits, choosing courses as follows:

1. Complete any of the courses currently required for the master's degree in clinical mental health counseling that have not previously been completed.
2. Complete elective courses approved by the advisor and based on the student's professional goals.

Clinical Mental Health Counseling Courses – EDC 8050, 8100, 8110, 8120, 8130, 8140, 8150, 8160, 8180, 8210, 8220, 8230, 8360, 8460, EDF 8010, 8390.

Counselor Education Elective Courses – EDC 8070, 8160, 8170, 8210, 8220, 8230, 8240, 8400, 8850, 9150, 9210.

CURRICULUM AND INSTRUCTION

Doctor of Philosophy

The Doctor of Philosophy degree in Curriculum and Instruction is a research degree that prepares students to become scholars who can discover, integrate and apply knowledge, as well as communicate and disseminate it. The intent of the program is to prepare students to make significant original contributions to knowledge in specialized fields. The program prepares students in one of the following specialty concentrations: elementary education, English education, mathematics education, science education, social studies education, reading education, or special education. These areas provide a general structure of coursework selections and research emphases; however, students are encouraged to work with faculty to design programs uniquely fitted to their areas of interest. The program of study for the degree is determined by the student's advisory committee.

Every doctoral student must satisfy all requirements of the Graduate School, as well as requirements in coursework, internships, the comprehensive exam, the dissertation proposal and oral defense of the dissertation as directed by the student's advisory committee. Students must maintain a *B* average in all graduate work. The degree usually requires a minimum of 65 credit hours beyond the master's degree, selected from the areas prescribed by the requirements of the PhD in Curriculum and Instruction. Listed below are the guidelines or normal expectations for a student receiving the PhD degree; however, the final determination of the course of study is made by the advisory committee.

Graduate courses designated for professional development are not eligible to be used toward a graduate degree.

A minimum of three to six hours of internship is required as part of each specialty area. An internship of sufficient time and quality of experiences to warrant three to six semester hours of graduate credit must be planned and executed to the satisfaction of the student's advisory committee.

Specialty areas require 6–18 credits in courses outside the School of Education. This approved coursework is intended to provide a concentration within the specialty area and/or exposure to disciplines outside the School of Education.

Admission Requirements

A complete application package should include proof of a master's degree, undergraduate and graduate transcripts, GRE scores, a résumé showing relevant professional experiences and a personal statement of professional history, goals and aspirations. Candidates passing initial committee review are invited for an interview. Students whose native language is not English must take the Test of English as a Foreign Language (TOEFL or IELTS). The deadlines for admission consideration are October 15 and March 15 for the subsequent academic terms.

Core Requirement Goals

The student will be able to critically analyze social, historical, psychological, personal and policy factors in the development and current practices of cur-

riculum and instruction; acquire an understanding of the research processes including practical design, analysis and reporting; understand how to use historical, correlational, descriptive and experimental methods within research; be able to analyze critically and evaluate research reports; and be able to prepare scholarly, research-based reports and presentations.

Course Requirements

The Curriculum and Instruction Program requirements are as follows:

Doctoral Seminar—Two credit hours.

Core—21 credit hours of core coursework represented by the following areas: Curriculum, Instruction and Assessment. Students successfully complete at least four courses representative of both quantitative and qualitative research methods and procedures.

Area of Specialization—24 credit hours of specific courses and minimum requirements determined by the student's doctoral committee that must include:

1. Courses and/or equivalent experiences to demonstrate competency in teaching and research practice (for example, ED 8940 and 9800).
2. 18 hours of specialized focus.

Dissertation—18 hours of ED (EDF, EDSP) 9910

Elementary Education Emphasis

Students with an emphasis in Elementary Education will demonstrate (1) in depth knowledge of one or more of the academic areas taught in the elementary school with an understanding of how the different areas relate to the learning and instructional needs of all students, in particular, design, implementation and evaluation of curriculum; effective instructional methods; and current issues and trends affecting teaching and/or learning; and (2) competence in research and evaluation. Students will be expected to apply their research skills to problems and topics related to elementary school curriculum, instruction, and ancillary programs.

The Elementary Education Emphasis Area requires ED (EDF, EDSP) 9800, EDEL 9370, 9380, plus 21 additional credit hours approved by the doctoral committee. A three-hour internship is required.

Literacy Education Emphasis

Students with an emphasis in Literacy will demonstrate (1) in depth knowledge in the field of reading with an understanding of the learning and instructional needs of all students, in particular design, implementation and evaluation of curriculum; effective instructional methods; and current issues and trends affecting teaching and/or learning; and (2) competence in basic and applied research and evaluation. Students will be expected to apply their research skills in the field of reading.

The Literacy Education Emphasis Area requires PSYC 8330, EDLT 9390, 9440, plus 12 additional credit hours selected from EDLT 8840, 8850, 8860, 8870, 9370, 9380, 9400, 9410, 9420, 9430, 9450. A six-hour internship is also required.

Secondary Education Emphasis

The PhD program in Curriculum and Instruction with an emphasis in Secondary English, Secondary Mathematics, Secondary Sciences, or Secondary Social Studies has five possible professional market

niches. The student's program for each niche will contain appropriate study in both that subject area and that niche to provide the necessary skills to be a productive professional. These five niches are (1) an English language, mathematics, science, or social studies teacher educator in higher education; (2) a subject-specific curriculum coordinator or curriculum supervisor in a medium to large school district, state department of education, or federal government agency; (3) a teacher of English language, mathematics, science, or social studies in a small four-year or community/technical college; (4) a curriculum developer of secondary English, mathematics, science, or social studies or; (5) an educator of programs in English language, mathematics, science, or social studies in commerce and industry.

English Education Goals—Students completing an emphasis in English Education will demonstrate a research knowledge base that includes the areas of teaching composition, literary response, language development, developments in English language, and multimedia applications for the English classroom.

Mathematics Education Goals—Students completing an emphasis in Mathematics Education will develop a knowledge base in current mathematics education issues, research, and classroom applications and be able to select and pursue appropriate research topics in mathematics education.

Science Education Goals—Students completing an emphasis in Science Education will demonstrate an understanding of how science process and content is most effectively learned, the components of state-of-the-art curriculum models, and the utilization of the most effective research methodologies designed to expand the theory base.

Social Studies Education Goals—Students with an emphasis in Social Studies Education will develop a knowledge base in current social studies issues, research and classroom applications and an ability to select and pursue appropriate research topics in social studies.

The Secondary Education Emphasis requires 30 credit hours arranged as follows:

Concentration—18 credit hours of advanced coursework in a discipline or related areas

Internship—three to six credit hours

Advanced studies in the teaching of English, mathematics, science, or social studies—three hours from the appropriate area: EDSC 8410, 8420, 8430, or 8440

Current Literature in Education—three hours from the appropriate area: EDSC 8460, 8470, 8480, or 8490

Special Education Emphasis

Students with an emphasis in Special Education will demonstrate: (1) In depth knowledge of disability and at-risk characteristics integrated with an understanding of how these characteristics relate to the learning and instructional needs of individuals in the (a) delivery of effective curricular and instructional, functional interventions, (b) philosophical and social contexts of special and general education, and (c) legal and organizational context of special and general education; and (2) competence in basic and applied research and evaluation, emphasizing special methodological concerns and evaluation of

services with individuals with disabilities and at-risk characteristics.

The Special Education Emphasis requires ED (EDF, EDSP) 9800, EDSP 8530, 9300, 9340, 9350, and 12 credit hours of elective coursework that may include ED 9010, 9380, EDSP 9360, 9370.

EDUCATIONAL LEADERSHIP

Doctor of Philosophy

The PhD program in Educational Leadership provides students with a strong background in five domains: leadership, research, policy, ethics and diversity. As the highest academic degree granted by Clemson University, the PhD prepares students to become scholars who can discover, integrate and apply knowledge as leaders in schools and post-secondary and community educational institutions and agencies. This is accomplished through close association with and apprenticeship to faculty members experienced in research, teaching and administration.

Admission Requirements

A complete application package should include competitive GRE scores, bachelor's and master's degree transcripts, three letters of recommendation, current curriculum vita, and a cover letter. The cover letter must be two to three pages in length, and should discuss (1) the candidate's reasons for pursuing the PhD degree in Educational Leadership, particularly as they relate to career and professional goals (elementary and secondary education or higher education); (2) one or more issues on which the candidate might like to do research; and (3) distinguishing characteristics that demonstrate the candidate's potential for success in the program. This letter will be evaluated as a writing sample.

Program Requirements

A student admitted to the Educational Leadership program must begin coursework within one year from the semester of acceptance or reapply for admission. Two concentrations—P12 and Higher Education—are offered for candidates pursuing the PhD in Educational Leadership. All candidates must take a minimum of 58 credit hours of graduate-level courses beyond the master's degree and complete an 18-hour dissertation project. The program core consists of a minimum of nine credits completed within the first two years of enrollment culminating in the Preliminary Exam. Upon successful completion of the Preliminary Exam, students consult with their doctoral advisory committees establishing their program of studies, including courses in concentration, research, internships and cognates. Internships are supervised by a practicing educational leader and by a faculty member. The internship experience is designed to acquaint the student with the practical applications of education theory in a planned, extensive and closely monitored opportunity for the student to work in a setting that reflects the student's long-range goals and the requirements for rigorous applied research. Cognates are courses from academic fields supporting the student's research agenda. Upon completion of the coursework, students qualify as doctoral candidates by successfully completing a comprehensive exam. The culminating requirement

for the program is successful completion of the dissertation as guided by the major advisor and the doctoral advising committee.

Course Requirements

Preliminary Core Courses—The following credits are required before taking the preliminary exam: EDL 9000, 9050, 9100, and 9110.

Concentration—A minimum of 18 credit hours, selected with the advice of the doctoral advisory committee, is required.

Research—Students must complete a qualitative research course (e.g., EDF 8790), an intermediate and advanced research course (e.g., EDF 8780, EXST 8010), and a series of directed research core courses (EDL 9880, 9890, and 9900).

Cognates—Cognates include courses from another area of study. As a part of the program of study, each student must complete six graduate credit hours beyond the field of Educational Leadership. All six hours must be from the same discipline and approved by the student's doctoral advising committee.

Dissertation—A minimum of 18 credit hours (EDL 9910) is required for the dissertation.

Internship—All students are required to complete three hours of field research internship credit (EDL 9860).

HUMAN RESOURCE DEVELOPMENT

Master of Human Resource Development

The human resource field is a specialized blend of education, systems design, consulting, psychology, management and sociology. The Master of Human Resource Development (MHRD) degree prepares professionals to work as trainers/instructional designers, human performance improvement (HPI) specialists and consultants within business, industry, non-profit and government and athletic organizations.

HRD/HPI professionals commonly provide diagnostic and intervention strategies related to the areas of technical and interpersonal skills, management, human and organizational performance and motivation. The MHRD program involves and enhances human performance in the workplace. The program is designed for professionals with three or more years of experience and is delivered in an interactive online format. The curriculum consists of 12 courses delivered over a two-year period in a cohort setting. Graduates of the program are capable of utilizing contemporary instructional and human performance technologies and methodologies. Program participants gain valuable skills and knowledge that accelerate their careers.

Admission Requirements

Applicants to the MHRD program follow general admission procedures as prescribed by the Graduate School. Note: The deadline to apply to the MHRD program is July 1. Every required item in support of the application must be on file by that date. The complete application package should include the following: baccalaureate degree with a preferred minimum

grade-point average of 3.0, transcript, résumé, letter describing professional goals, two letters of reference and competitive GRE scores. Applicants must possess three years of relevant full-time work experience and complete the on-line Keirsey™ Temperament Sorter®-II and Campbell™ Interest and Skill Survey®. These assessments are available at www.keirseycampbell.com/. (Click on Purchase Here. Use the promotion code CLEMS0N23 to have scores for both assessments sent to the MHRD admissions committee. A nominal fee is charged for these assessments.)

Program Requirements

All courses are delivered through distance education technologies. Students need access to e-mail and the Internet and the ability to read a CD-ROM or DVD. Students also need current versions of operating systems, word processing, spreadsheet and presentation software. Since the required courses involve sending and receiving large files of information, students will need a computer equipped with a Web cam, microphone and DSL or high-speed internet connection.

The MHRD program consists of 36 credit hours of coursework arranged as follows:

First Year

Fall Semester

3 - HRD 8200 Human Performance Improvement
3 - HRD 8300 Concepts of Human Resource Dev.
6

Spring Semester

3 - HRD 8470 Instructional Syst. Design
3 - HRD 8800 Research Concepts and Skills
6

Summer

3 - HRD 8700 Consulting for Education and Industry
3 - HRD 8900 Instrumentation for Human Performance Improvement
6

Second Year

Fall Semester

3 - HRD 8450 Needs Assessment for Education and Industry
3 - HRD 8600 Instructional Materials Development
6

Spring Semester

3 - HRD 8490 Evaluation of Training and Development/HRD Programs
3 - HRD 8970 Appl. Research and Development
6

Summer

3 - HRD 8250 Organizational Performance Improvement
3 - HRD 8820 Knowledge Management for Improved Performance
6

36 Total Semester Hours

Students must satisfy requirements for the Graduate School, complete the approved program of study for the degree, maintain a B average in all graduate coursework and pass a comprehensive exam.

ATHLETIC LEADERSHIP CONCENTRATION

First Year

Fall Semester

3 - HRD 8200 Human Performance Improvement
3 - HRD 8300 Concepts of Human Resource Dev.
6

Spring Semester

3 - HRD (CTE) 8470 Instructional Syst. Design
3 - HRD 8800 Research Concepts and Skills
6

Summer

3 - AL 8620 Psychological Issues and Collegiate Athletics
3 - HRD 8900 Instrumentation for Human Performance Improvement
6

Second Year

Fall Semester

3 - AL 8490 Athletic Leadership Development
3 - HRD (CTE) 8600 Instructional Materials Development
6

Spring Semester

3 - AL 8640 Ethical Issues in Collegiate Athletic Administration
3 - HRD 8970 Appl. Research and Development
6

Summer

3 - AL 8610 Athletic Leadership for Intercollegiate Administration
3 - HRD 8820 Knowledge Management for Improved Performance
6

36 Total Semester Hours

Students must satisfy requirements for the Graduate School, complete the approved program of study for the degree, maintain a B average in all graduate coursework and pass a final exam.

LITERACY

Master of Education

The purpose of the MED degree in Literacy is to educate reading professionals who have an in-depth knowledge of reading theories, processes, strategies, curriculum and research, and who can use that knowledge to plan appropriate reading programs and curricula for a variety of contexts and communicate information to a wide variety of audiences. The program is approved by IRA.

Objectives

Graduates with the MEd in Literacy will demonstrate (1) an understanding of reading as the process of constructing meaning through the interaction of the reader's existing knowledge, the information suggested by the written language and the context of the reading situation; (2) knowledge of the influence of cultural, ethnic and linguistic backgrounds on the reading process and how to use what the reader brings to the reading experience; (3) an understanding of relationships among the language processes of reading, writing, listening and speaking; (4) support for students in acquiring the ability to monitor comprehension and reading processes and apply appropriate strategies for a variety of purposes; knowledge of assessments that involve multiple indicators of learner progress; (5) development of an environment that motivates students to pursue and respond to reading and writing for personal growth and development; (6) understanding of English language learners' literacy and language development and expertise in supporting their literacy learning through strategic teaching; (7) classroom-based research in reading; and (8) expertise in sharing knowledge of reading research and instructional practices with peers.

Admission Requirements

Complete application package should include a completed application, statement of purpose (professional goals and philosophy of teaching), a valid teaching certificate, two letters of recommendation, an undergraduate transcript with a grade-point average of 3.0 on a 4.0 scale (last 60 hours), and competitive GRE scores. Applications are considered on a rolling basis throughout the academic year.

Program Requirements

The program requires 36 credit hours of coursework and a satisfactory score on the final exam. The following courses are required of all students: EDF 8020, 8080, EDLT 8600 (prerequisite for ESOL Emphasis), 8610, 8620, 8630, 8640, 8650, 8660.

The MEd in Literacy offers two plans for completion of program requirements:

Literacy Teacher certification: K-12 – In addition to the required courses above, students must take nine additional literacy/language arts courses from the following list: EDLT 8670, 8680, 8690, 8700, 8710, 8720, 8730, 8740, 8820, 8830, EDF 8770, 8800, EDSP 8200.

Literacy Teacher certification: K-12 and ESOL emphasis – In addition to the required courses above, students must complete the following courses: EDLT 8730, 8740, ED 8670, 8390.

MIDDLE LEVEL EDUCATION

Master of Arts in Teaching

The Master of Arts in Teaching (MAT) degree is designed for mid-career professionals who are seeking to change fields and for students with backgrounds in content areas who are not currently certified to teach. The program in Middle Level Education possesses several intrinsic advantages over other initial certification programs. Most importantly, it places well-prepared candidates in the classroom in a timely manner. An individual possessing a bachelor's degree in a content or closely related field is given an intensive one-year, field-based experience. He/she can then expect to start in the classroom as a first year teacher after a full academic year (including summer sessions).

The objectives of the Master of Arts in Teaching in Middle Level Education are to promote the entrance of content-ready individuals into the South Carolina classroom in a timely manner and to provide a rigorous yet plausible route for individuals seeking to change careers and enter teaching. The program is approved by AMLE.

Admission Requirements

Acceptance is based on a combination of previous academic performance, two letters of recommendation, test scores, and personal interview. Exceptions to the admission requirements may be made on a case by case basis.

- A minimum GPA of 2.7 (on a 4.0 scale) either overall or in the content area as evidenced on transcripts
- Competitive Graduate Record Exam (GRE) or Miller Analogies Test (MAT)
- Passing PRAXIS II score in the content area for which certification is sought is required before student teaching.

Program Requirements

The MAT program, offered at the University Center of Greenville, is composed of three elements: core pedagogical coursework, content coursework and an intensive field-based component. This includes six hours of Methods Practicum, three in each area of content certification. These six credit hours meet the State's requirements for student teaching. The remaining 12 credit hours are taken individually in the content areas.

Students in the MAT block begin during the fall semester when public schools begin.

In the spring, students begin the semester with two weeks of intensive classroom work in the three remaining core courses. These courses are considered "bookend" classes that bracket the student teaching experience. The methods practicum/student teaching includes a portfolio assignment.

The MAT in Middle Level Education program requires 36 credit hours, 24 in core education classes and 12 in the content areas. Core classes include: EDML 8020, EDML 8030, EDML 8080, EDML 8410, EDLT 8670, EDSP 8230, and two methods classes from among EDML 8110 and 8210 for language arts, EDML 8120 and 8220 for social studies, EDML 8130 and 8230 for math, and EDML 8140 and 8240 for science. Content classes are arranged with the content area advisor

SECONDARY EDUCATION

Master of Arts in Teaching

The Master of Arts in Teaching (MAT) in Secondary Science or Secondary Mathematics is a 39 semester hour program that can be completed in 13 months and is offered in the Greenville area. It consists of on-line and face-to-face instruction, and more than 100 hours of field experience prior to student teaching.

The MAT program is a technologically rich program in which students master the fundamentals of teaching and become skilled at motivating and helping students learn either science or mathematics at deep levels. The program addresses content directly related to the secondary classroom, educational foundations, and specific teaching methods that reflect current research in the field.

The program also provides the courses required for initial certification for grades nine through twelve in South Carolina. The program is geared primarily towards adults with a background in science, mathematics, or a related discipline who wish to change careers and enter the teaching field. The program is approved by NCTM (mathematics) and NSTA (science).

Admission Requirements

The optimal entry point into the MAT Program is during the Summer I term with a projected graduation the following summer. The program application deadline is April 1.

To be considered for admission, individuals must:

- Complete the online application to the Clemson University Graduate School. To ensure full consideration, applications must be received by the April 1 deadline. On the application, indicate either science or mathematics as a licensure area.
- Submit unofficial transcripts from all prior institutions from which a degree was awarded or from which transfer credit is desired. A Bachelor's degree or higher is required from an accredited institution with a minimum GPA of 2.7. Prior coursework should show completion of at least 30 semester credits with a C or better in the certification area or closely related discipline. *Note:* Additional coursework may be required to address deficiencies.
- Provide evidence of content mastery in desired field. Students are strongly encouraged to submit a passing score on the 0030 or 0070 Praxis II exam for science or the 0061 Praxis II exam for mathematics as evidence with their application. A passing score must be on file at Clemson prior to student teaching.

- Complete a departmental interview (can be scheduled before or after all application materials have been submitted).
- Include two recommendations. (*Note:* Recommendation forms may be sent to recommenders electronically from the online application, or PDF recommendation forms can be sent for recommenders to complete and return to the Graduate School.)
- Submit official Graduate Record Exam (GRE) or Miller Analogies Test (MAT) scores.
- Submit TOEFL or IELTS scores, if English is not the student's first language.
- Submit a resume and indicate relevant professional work experience.

Curriculum

The MAT program is composed of three elements:

1. Core pedagogical coursework (15 hours),
2. Content coursework (9 hours), and
3. Practicum and internship components (15 hours)

The discipline-specific methods courses, practicum and content literacy courses, taken in the fall semester, require students to complete a field experience in a local public high school, during which they spend two days per week in the assigned placement. During the spring semester, students complete a 15-week directed internship (student teaching) and a Capstone Seminar.

Sample Course of Study

Summer Session I (6 credits)

- Content Course¹
- Advanced Educational Psychology

Summer Session II (6 credits)

- Content Course¹
- Teaching Students with Individual Differences and Exceptionalities

Fall Semester (12 credits)

- Classroom Assessment Methods
- Content Area Literacy
- Tests and Measurement
- Classroom Management

MAT Spring Semester Session I (12 credits)

- Directed Internship (student teaching)
- Internship and Research Seminar

Summer Session I (3 credits)

- Content Course¹

Note 1: Content area courses must be approved by the program advisor.

Total Hours: 39

Program Requirements

Completion of the MAT for Secondary Science or Mathematics degree program is dependent upon:

- Completion of all required prerequisites
- A record of all state-required Praxis II exams on file at Clemson University, prior to student teaching. This includes a passing score on the 0030 or 0070 for science students or the 0061 and 0063 for math students. *Note:* Passing scores on the following tests are required for certification.

Science: 0030 or 0070: 0624

Math: 0061, 0063, and 0624

Additional information can be found at <http://www.ets.org/praxis/sc/requirements>

- Completion of all coursework with a grade of C or better
- Successful completion of student teaching experience

SPECIAL EDUCATION

Master of Education

The Master of Education degree in Special Education ensures that students are knowledgeable in the field of special education. The program in Special Education prepares students in one of the following areas: emotional/behavioral disorders, learning disabilities, or mental retardation. The program is approved by the Council for Exceptional Children (CEC) and follows guidelines prescribed by CEC. The prescribed program of study enables students to identify important legal and policy issues in special education, demonstrate knowledge of the research processes within the field of special education, demonstrate knowledge of specific characteristics of individuals with mild disabilities and implement research-validated interventions for students with disabilities in a variety of settings. Successful graduates will evaluate critically the literature in the field, recognize and evaluate current issues and problems in special education and identify potential solutions for these problems.

Graduate students must satisfy requirements of the Graduate School, complete the approved program of study for the degree, maintain a B average in all graduate work and pass a final exam. The degree requires 36 credit hours. In addition to successfully completing all required coursework and final exam, candidates must have on record scores for all Praxis II exams required by South Carolina for certification in their area of specialization (Learning Disabilities, Intellectual and Developmental Disabilities, or Emotional/Behavioral Disorders) prior to graduation.

Admission Requirements

A complete application package should include a bachelor's degree, a valid teaching certificate, two letters of recommendation, an undergraduate transcript with a grade-point average of 3.0 on a 4.0 scale (last 60 hours), and competitive GRE scores. Applications are considered on a rolling basis throughout the academic year.

Program Requirements

Required Courses—EDF 7780, EDSP 8200, 8210, 8220, 8230, 8410, 8530, 8540

Area of Emphasis—9-12 credit hours

Students choose from one of the emphasis areas below. Courses in each area partially fulfill requirements for South Carolina certification in that area.

Emotional/Behavioral Disabilities Disorders—EDSP 8130, 8140, 8150, and 8151

Learning Disabilities—EDSP 8100, 8110^{*}, 8120, and 8121

Mental Retardation—EDSP 8160, 8170, 8180, and 8181

Electives—Three credit hours are required. EDLT 8650 is recommended for those intending to work in elementary settings. EDSP 8400 is recommended for those intending to work in secondary settings.

^{*}EDSP 8110 is required for South Carolina certification in Emotional/Behavioral Disabilities and should be included in the program of study in lieu of elective hours unless it has been taken previously.

TEACHING AND LEARNING

Master of Education

The Master of Education in Teaching and Learning includes coursework in research methods and action research, educational tests and measurement, curriculum theory and development, educational psychology, and schooling context. Students may elect to specialize in one of the following emphasis areas: Early Childhood Education, Elementary Education, English Education, Mathematics Education, Science Education, or Social Studies Education. The program is intended to strengthen and enhance teaching skills, promote research and reflection on innovative teaching strategies, and expand content knowledge.

Admission Requirements

A complete application package should include a bachelor's degree, a valid teaching certificate, two letters of recommendation, an undergraduate transcript with a grade-point average of 3.0 on a 4.0 scale (last 60 hours), and competitive GRE scores. Applications are considered on a rolling basis throughout the academic year. Before enrolling in any graduate course, the student should arrange a conference with the major advisor. Courses taken prior to this conference may not be acceptable for the degree. Professional development courses will not count toward the degree. Exceptions to the program of study must be approved by the student's advisory committee, which consists of the major advisor and two faculty members from the department in which the student has taken coursework.

Degree Requirements

Graduate students must satisfy requirements for the Graduate School, complete the approved program of study for the degree, maintain a B average in all graduate work and pass a final exam. The degree maintains 30 credit hours (33 for those who have not successfully completed an undergraduate content reading course).

When the student has successfully completed 24 hours toward the degree, he/she may take the final written examination. The examination is arranged at a specified time each semester.

Core Courses—18 credit hours

EDEL 7600, EDF 8000, 8020, 8770, ED 8600, 8080

Specialty Courses—12 credit hours

Specialty courses must be chosen in conjunction with the major advisor. Specialty coursework should be related to one of the following emphasis areas: Early Childhood Education, Elementary Education, English Education, Mathematics Education, Science Education, or Social Studies Education.

APPLIED HEALTH RESEARCH AND EVALUATION

Master of Science Doctor of Philosophy

The graduate program in Applied Health Research and Evaluation awards a master of science degree (en route) and a doctor of philosophy degree upon completion of 66 credits for students entering with a bachelor of science degree or 54 hours for students entering with a master's degree (Students who enter the program with a master's degree, may be allowed to exempt a maximum of 12 credits if appropriate courses were completed in their master's degree program. Courses eligible for exemption are noted with an asterisk in the typical course of study below.)

The 66 credits are distributed as follows: 36 credits of core research courses and seminars; 18 hours of dissertation coursework; and 12 credits of content coursework approved by the student's advisor.

Students who choose to leave the program before the completion of the PhD must complete 34 credits of core research and seminar coursework, pass a qualifying exam, and prepare a publishable paper in order to be awarded the MS in Applied Health Research and Evaluation.

Students applying to the PhD program are expected to have completed six credits of statistics or research methods. Deficits in courses completed or foundation skills in statistics require remediation with approved classes taken in addition to the courses outlined in the PhD curriculum below. This curriculum is representative, but flexibility with regard to content and dissertation coursework is expected. Students should consult their advisor.

First Year

Fall Semester

- 3 - HLTH 8030 Theories and Determinants of Health
- 3 - HLTH 8090 Epidemiological Research
- 3 - HLTH 8210 Health Research I: Design and Measurement
- 1 - HLTH 8890 Seminar
- 10

Spring Semester

- 3 - HLTH 8110 Health Care Delivery Systems
- 3 - HLTH 8310 Quantitative Analysis in Health Research I
- 3 - HLTH 8290 Epidemiology II: Applied Epidem.
- 1 - HLTH 8890 Seminar
- 10

Second Year

Fall Semester

- 3 - HLTH 8220 Health Research II: Qualitative and Mixed Methods
- 3 - HLTH 8320 Quantitative Analysis in Health Research II
- 3 - HLTH 8410 Foundations of Evaluation in Health
- 1 - HLTH 8890 Seminar
- 10

Spring Semester

- 3 - HLTH 8420 Applied Evaluation Methods in Health
- 1 - HLTH 8890 Seminar
- 3 - Content Course¹
- 7

Third Year

Fall Semester

- 1 - HLTH 8890 Seminar
- 3 - HLTH 9910 Doctoral Dissertation Research²
- 6 - Content Courses¹
- 10

Spring Semester

- 1 - HLTH 8890 Seminar
- 3 - HLTH 9910 Doctoral Dissertation Research²
- 3 - Content Course¹
- 7

Fourth Year

Fall Semester

- 6 - HLTH 9910 Doctoral Dissertation Research²
- 6

Spring Semester

- 6 - HLTH 9910 Doctoral Dissertation Research²
- 6

66 Total Semester Hours

¹ Content courses allow students to develop an appropriate content area and consist of 12 credits approved by the student's advisor. One course must include three credits in an advanced statistics or analysis course relevant to the student's research interests. Courses could include those in nutrition, physical activity, the built environment, aging, substance abuse, violence, health communication, health care, advanced statics, qualitative assessment, survey design, or secondary data analysis. Content courses may be taken during the spring semester of the student's second year or any time during the third year as approved by the student's advisor.

² Doctoral dissertation research credits may be taken anytime during the student's third or fourth year as approved by the student's advisor.

HEALTHCARE GENETICS

Doctor of Philosophy

The interdisciplinary Doctor of Philosophy degree program in Healthcare Genetics, provided through the School of Nursing, offers individuals from multiple health-related disciplines the opportunity to achieve a terminal degree in Healthcare Genetics. The curriculum builds partnerships with more than six disciplines focusing on genetics, health policy and ethics, theory development and quantitative and qualitative research methods. Three specialty research tracks promote advanced study in Translational Genetics [Bench Research], Applied Population Genetics as an Interventionist, or Genetics in Ethics/Health Policy.

The PhD program in Healthcare Genetics prepares interdisciplinary scientists to extend the knowledge base relevant to healthcare genomics, translate research to advance the application of genomics in healthcare and collaborate in interdisciplinary research and practice.

Objectives of the program are as follows:

1. Collaborate with other disciplines to generate knowledge and develop theories that focus on the genetic aspects of actual and potential health problems of diverse individuals, families, groups and communities while addressing health disparities.
2. Formulate health promotion, disease prevention, and treatment strategies that translate and integrate genomic knowledge from a variety of disciplines.
3. Demonstrate leadership that facilitates interdisciplinary development and application of ethical guidelines and health policy in genetics.
4. Disseminate research findings to expand knowledge of genomics into models of practice.

Coursework includes a variety of on-line, Web-enhanced and traditional classroom settings. Core courses are available on the Clemson University campus, as well as a variety of other institutions.

Admission Requirements

Students applying for the Healthcare Genetics program will have at least a bachelor's degree in a related health science discipline from an accredited institution. Other requirements include the following:

1. Competitive GRE scores (most successful applicants will have at least a 153 on the verbal section, a 144 on the quant section and a 4.0 for the writing section)
2. Master's (MS/MA) thesis or publications. (BS applicants entering without a data-based research experience will be required to complete satisfactorily a research project utilizing the six hours of cognate electives prior to beginning the core courses in the doctoral program.)
3. Submission of a curriculum vita
4. Written statement of career goals
5. Graduate School application with three letters of recommendation from professionals that address research and scholarly potential
6. Interviews with two faculty members (may be conducted in person, Polycom, or telephone depending on individual circumstances)
7. Cumulative grade-point average of 3.4 or higher in the undergraduate (and/or graduate programs if applicable)

The curriculum is composed of 12 core courses and three cognate specialties/tracks. The core curriculum provides 34 hours of coursework in the areas of genetics, health policy and ethics, theory development and quantitative and qualitative research methods. In the specialty cognates, students pursue advanced study in Basic Genetics [Bench Research], Applied Population Genetics as an Interventionist, or Genetics in Ethics/Health Policy. Seminars and electives bring the cognate hours to 18. With 18 hours of dissertation (requirements met as manuscripts submitted for preparation), the total credit hours required is 70. This can be accomplished full-time over a four-year period, including two summers of study.

Comprehensive exams and 18 hours of dissertation research are required (to be developed as three manuscripts for publication).

The coordinator of the PhD program in Healthcare Genetics, in concert with individual faculty advisors, will work with each student to determine the requirements for their program of study. The plan of study for a student entering with a bachelor's degree will be developed that reflects prior coursework, required prerequisites and data-based research experiences. Students without previous biochemistry courses will be required to take BIOCH 6320 or its equivalent.

INTERNATIONAL FAMILY AND COMMUNITY STUDIES

Doctor of Philosophy Certificate

The doctoral program in International Family and Community Studies educates professionals to generate, diffuse, and apply knowledge needed to strengthen communities' capacity for family support, meaningful participation, and strong relationships, including mutual assistance. The program prepares graduates as (1) scholars in interdisciplinary institutes or academic departments on child and family studies, social policy studies, international studies, or community development; or (2) researchers, planners, or administrators in domestic or international governmental or nongovernmental agencies concerned with children, families, and/or communities.

The program is based in the Institute on Family and Neighborhood Life and relies on the Institute's ties with related university programs in Africa, Asia, Europe, and Latin America. Students also have the opportunity to participate in the Institute's community development, policy consultation, and empirical research projects in South Carolina and other states and nations.

With its focus on family and community life, the program touches on the most fundamental aspects of people's everyday lives. Blending the humanities, the social sciences, and various professional disciplines, the program may be unique in its integration of normative analysis (i.e., philosophical, legal, and religious studies), empirical research, and community development. With a foundation in the study of human rights as applied to children and families around the world, the program builds a comparative understanding of U.S., foreign, and international law and policy on child and family issues and of the significance of democracy for the well-being of individuals, families, and communities. Students acquire an appreciation of the role of civil society (e.g., voluntary associations and nonprofit organizations) and primary community institutions (e.g., schools) in promoting and maintaining democracy. Such studies provide the foundations for an understanding of the principles and practices of community development and transformation, humanitarian assistance, and responsive human services. The important role and features of effective informal mutual assistance mechanisms in community life and their meaning for children and families are also explored.

To provide a richer understanding of human development and family life and to build skills for work in diverse cultures, international study is emphasized. Students are encouraged to become proficient in studies of world regions and in communication in a language other than their own. Building on the Institute's relationships with universities in developing and transitional countries, students often spend time at an affiliated center outside North America, where they engage in supervised research and/or public service.

Admission Requirements

Applicants must hold a bachelor's or a master's degree from an accredited degree program. In addition to strong academic performance, experience in volunteer and/or professional public service is desirable. Students must submit GRE and/or Miller's Analogy Test scores, three letters of recommendation from professionals familiar with the applicant's academic work and/or community service, and a 500-word essay on the applicant's career aspirations and goals and their relation to this graduate program. Students for whom English is not the first language are also required to submit TOEFL or IELTS scores. Both U.S. and international students are welcome, as are both new graduates and experienced professionals.

Program Requirements

The degree requires 66 credit hours of postbaccalaureate work. A minimum of 30 hours is required of postmaster's degree students. The normal course of study requires four years for postbaccalaureate students.

The program requires FCS 8100, 8110, 8200, 8210, 8220, 8300, 8310, 8320, 8330, 8360; plus twelve credits selected from ANTH 6030, FCS 8400, 8920, PSYC 8100, 8110, or SOC 8050.

In addition, six credits of language studies are required. (These credits may be at the undergraduate level.) Eighteen credits of dissertation research (FCS 9910) are required. Students entering postbaccalaureate must also complete six hours of FCS 8900.

Certificate

With the approval of the Institute Director or Associate Director, domestic or international students with a bachelor's degree are admitted to the certificate program.

With advice from an Institute faculty member, students select one of four tracks and develop a plan of study based on courses selected from the following: FCS 8100, 8110, 8120, 8200, 8210, 8220, 8300, 8310, 8320, 8330, 8350, 8400, 8900, 8920, 8930.

NURSING

Master of Science

The Master of Science degree program with a major in Nursing builds upon the first professional degree. The student acquires knowledge and skills in advanced nursing: clinical nurse specialist (CNS), nurse practitioner (NP), nurse administration, or nursing education. The student may select one of the following study options: child/adolescent nursing (CNS), adult/gerontological nursing (CNS), adult/gerontological nurse practitioner (A/GNP), family nurse practitioner (FNP), nurse administration, or

nursing education. All graduate options articulate with the baccalaureate program in the continued acquisition of advanced nursing knowledge and skills. This specialization builds toward advanced nursing knowledge in selected practice and role areas. Theory, research and role development are emphasized to enable graduates to participate in the development of nursing knowledge and contribute to the advancement of the nursing profession.

The objectives of the Master of Science degree program in Nursing are to provide graduates with the ability to integrate advanced knowledge from nursing and related disciplines into a specialized area of nursing practice; demonstrate competence in a selected functional role (clinical specialist, nurse practitioner, nurse administrator, or nurse educator); evaluate and apply research findings from nursing and related disciplines to advanced nursing practice; participate in the development of nursing knowledge by identifying researchable nursing problems, conducting research and selectively integrating research findings in advanced nursing practice; utilize leadership, management, teaching knowledge and competence to influence nursing practice; participate as a leader to influence health policy and improve the health care delivery system; and contribute to the advancement of the nursing profession.

All graduate courses are based at the University Center of Greenville.

Admission Requirements

In addition to meeting University admission requirements, applicants should be graduates of nationally-accredited baccalaureate nursing programs; must have had an undergraduate statistics course, computer course, or equivalent; and must demonstrate evidence of current basic client assessment skills. In addition, students must document recent significant nursing practice which is defined as 600 hours during the 12 months prior to acceptance into the program. Nursing Administration majors must complete an undergraduate accounting course.

PARKS, RECREATION AND TOURISM MANAGEMENT

Master of Science Doctor of Philosophy

The Department of Parks, Recreation and Tourism Management offers a Master of Science degree (MS thesis and non-thesis) and a Doctor of Philosophy degree (PhD). Flexibility permits individual development in professional interest areas such as therapeutic recreation; travel and tourism management; park and conservation area management; and community recreation, sport and camp management. Each student's program is tailored to suit his/her personal and professional goals. Applicants from nonrecreation disciplines are required to develop background knowledge of recreation through undergraduate coursework. Applicants for the MS (thesis) and Ph.D must submit GRE scores.

The Master of Science (thesis) degree is designed for individuals planning to undertake doctoral study or seek employment in a research-related position. The Master of Science (non-thesis) degree is designed for practitioners desiring an advanced degree or those looking for a career change but unable or not interested in earning a degree in residence. Candidates who select the thesis option must complete a minimum of 30 hours of coursework and six hours of research culminating in a thesis. Students who select the non-thesis program must complete 27 hours of coursework and a three-hour culminating project. The non-thesis option is delivered entirely online.

The Doctor of Philosophy is an advanced research degree requiring performance of original research leading to a dissertation. Comprehensive and final examinations and 18 hours of dissertation research are required. Coursework is determined by each student's doctoral committee.

PUBLIC ADMINISTRATION

Master of Public Administration

The Master of Public Administration degree program requires 39-42 credit hours, depending on the student's background. All MPA students must complete seven core courses (PADM 7020, 8210, 8220, 8270, 8290, 8410, 8620). In addition, one level of government course (PADM 8670, 8680) and five electives must be completed. Finally, all students must demonstrate a proficient knowledge of the field of public administration by passing a comprehensive examination. Students may request to take PADM 8800 in lieu of the comprehensive examination.

Certificate in Public Administration

Admission Requirements

Admission will be based on an assessment of the applicant's educational needs and career objectives. Each applicant must also furnish a letter of recommendation, an application (available from the Clemson graduate school), transcripts, personal statement, and a résumé.

Students from any department or discipline may elect to complete the certificate program. Students who are already enrolled in a graduate degree program must obtain written approval from their graduate programs/advisors and the MPA Director. No prerequisites are required of these students.

In addition to the conditions above, international applicants are required to demonstrate that they satisfy the University's minimum English language proficiency requirements or equivalent.

Students currently pursuing MPA coursework in a non-degree status may apply for the Graduate Certificate in Public Management. The hours earned in a non-degree status may be applied to the certificate program requirements (within four years of completion of the courses).

Course Requirements

Courses are determined by the student's educational needs and career objectives and must be reviewed and approved by the MPA coordinator. Other graduate courses may be substituted in the elective sequence

with the approval of the MPA director. Program participants must maintain an overall minimum grade-point average of 3.0 in the certificate program. Certificate courses must be completed within a span of four years.

A graduate certificate will be awarded upon completion of 15 credit hours of study, as outlined below, and submission of a Certificate Portfolio which will consist of a compilation of the cumulative coursework accomplished in the program.

The certificate requires at least one core course and four additional courses of the student's choosing. Courses may be selected from the core course list or any set of specialization courses offered in the MPA program.

The following coursework is required:

Core Sequence—at least one core course selected from PADM 8210, 8220, 8270, 8290, 8620

Credit earned for a certificate may be applied toward the Master of Public Administration degree with the advice and approval of the MPA Director.

The Master of Public Administration degree and the Certificate in Public Administration are offered on-line programs.

YOUTH DEVELOPMENT LEADERSHIP

Master of Science

The Master of Science degree program in Youth Development Leadership equips students with the competencies, knowledge and skills to help young people develop into healthy, competent, coping and contributing citizens. This program prepares students to address issues facing youth in the context of family and community with an emphasis on positive outcomes through a dynamic learning environment.

The MS in Youth Development Leadership program is an interdisciplinary degree primarily involving departments and units in the College of Health, Education and Human Development but also including academic areas from other colleges and units at the University. This program is designed to meet the needs of students who are also working professionals. All courses are offered in an accelerated format and are delivered through a variety of asynchronous and synchronous distance education technologies. Minimum technology requirements for this program include access to e-mail and the Internet with the ability to read CD-ROMs and DVDs.

This program has a strong relationship with youth-related agencies/organizations and engages them in learning and experiential opportunities for students. The Youth Development Leadership program is designed to empower students to focus on strengths and assets within the context of family and community that will promote positive youth development; identify and examine physical, emotional, environmental and social issues related to being a young person in today's society; prepare professional educators and leaders at all program and management levels for

careers in schools, agencies, institutions and community groups that serve youth; train new and current professionals to be well prepared with increased knowledge and enhanced skills in the youth development area; prepare leaders who will have an immediate impact on youth development in South Carolina and around the nation; link formal and non-formal prevention and intervention youth programs to enhance the learning experience for students; and enhance youth serving agencies and organizations by supplying professionals who are competent in child and adolescent growth and development.

The Master of Science in Youth Development Leadership requires 36 semester hours of coursework as follows: EXST 8010, HEHD 8000, 8010, 8020, 8030, 8040, 8050, 8060, 8070, 8080, 8910, 8920.

Admission Requirements

A complete application package should include proof of a baccalaureate degree with a minimum grade-point average of 3.0 on a 4.0 scale, an acceptable score on the Graduate Record Examination (GRE), a letter of intent and two letters of reference. Experience in the field of youth development is preferred.