Requirements

<table>
<thead>
<tr>
<th>Degree Program</th>
<th>Hours in Approved IGSP Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master’s in home department, minor in statistics</td>
<td>9</td>
</tr>
<tr>
<td>Master’s in home department, MS in statistics</td>
<td>24</td>
</tr>
<tr>
<td>Doctorate in home department, minor in statistics</td>
<td>15</td>
</tr>
<tr>
<td>Doctorate in home department, MS in statistics*</td>
<td>24</td>
</tr>
</tbody>
</table>

* The MS in statistics requires 33 hours.

Course options consist of courses in statistics, offered either by the Department of Statistics, Operations and Management Science or by other departments, which have been reviewed and approved by the IGSP Executive Committee. Students taking an MS with a major in statistics must pass the two-part comprehensive examination covering statistical theory and methods. Students taking a minor in statistics in conjunction with a doctorate in another field must pass a written comprehensive examination in statistics, constructed and evaluated by the student’s examination committee. No formal comprehensive examination is required of students earning a statistics minor along with a master’s in another field beyond questions, which the home department wishes to include as part of the comprehensive examination for the master’s degree.

Procedures

The student’s home department must have approved a program of courses with the executive committee. That program will specify the sequences of statistics courses, chosen from the IGSP approved list, that are considered appropriate by the home department. Students who wish to participate in this program should contact their college representative or the Chair of IGSP in the Department of Statistics, Operations and Management Science.

The student’s graduate committee must include a member of the IGSP faculty. For students seeking doctoral degrees or the Master of Science with a major in statistics, the committee member must be a faculty member in the Department of Statistics, Operations and Management Science.

The student’s Admission to Candidacy form must contain all courses required for the chosen degree program set off in a group and labeled, “Statistics courses required for the minor or MS in statistics.” Should the student decide not to apply for admission to the program until after completion of some of the courses, the student’s major professor should file a program change with the cooperating departments and assist the student in obtaining a Department of Statistics, Operations and Management Science faculty member to serve on the student’s graduate committee.

Successful completion of the statistics MS or minor is recognized by appropriate documentation on the student’s transcript. Students who do not complete the requirements of the minor or MS will still receive academic credit for the statistics courses they have successfully completed.

For information contact msyounger@utk.edu or http://www.bus.utk.edu/stat/igsp.

Doctor of Philosophy

Business Administration Major

Statistics Concentration

This concentration provides students with a broad knowledge of the field of statistics, the ability to apply statistics in practical situations to problems of business and industry and the ability to develop new statistical methods; all of which takes place while students are exposed to coursework in the basic functional areas of business.

Minimum course requirements are 592, 662, 663, 664, 691, and two courses chosen from 666, 673, 674, 679.

Graduate Certificate in Applied Statistical Strategies

The Department of Statistics offers a graduate certificate in applied statistical strategies. The program is designed for the part-time student and several of the courses are offered through distance education.

The 12-hour certificate is available by completing two required courses, 571-572, and two electives selected from 573, 575, 579, and 585 or 566 or other graduate statistics courses as approved by the Statistics Graduate Program Committee Chair.
The College of Communication and Information fosters among students and the larger community a sense of the legal and ethical responsibilities of access to information and the exercise of expression in a democratic society. Additionally, the college serves the professional goals of preparing students for careers in the communication and information professions.

The college includes four schools – School of Advertising and Public Relations, School of Communication Studies, School of Information Sciences, and School of Journalism and Electronic Media. These programs came together as a single College of Communication and Information in 2002. The college offers two master’s and one doctoral degree.

The Master of Science with a major in communication and information is a college-wide degree offering multiple concentrations that typically are housed within one of the schools. These concentrations have a core curriculum that focuses on theory and research. Students then take coursework supporting the concentration as well as electives. They also engage in a capstone experience. Concentrations in advertising, journalism and electronic media, and public relations are accredited by the Accrediting Council on Education in Journalism and Mass Communication.

The Master of Science with a major in information sciences is designed primarily for librarians and information professionals. That program is coordinated by the School of Information Sciences and involves both on-campus and distance education coursework. This program is accredited by the American Library Association and the National Council for Accreditation of Teacher Education. More details on this degree are provided in the listing for the School of Information Sciences, which follows information about college-wide degrees.

The Doctor of Philosophy with a major in communication and information builds on core courses that focus on knowledge creation across the disciplines represented by the college. Additional required coursework in a primary and cognate area will be selected by the student and his/her program committee. Communication and information is available as a secondary area for students majoring in other departments.

Facilities for research and service include the Center for Information Studies (CIS) and the Communication Research Center (CRC).

Academic Standards
A student in the College of Communication and Information whose graduate grade point average, not including incomplete grades, is below 3.0 at any time after the end of 12 hours of graduate credit will be placed on probation. A student on probation will be dropped from the program unless his or her cumulative graduate grade point average is 3.0 or higher at the end of the probationary period. The probationary period is defined as the next 12 semester hours of graduate coursework attempted that is specified in the student’s degree program. Exceptions to this policy may be made only with the approval of the Associate Dean for Academics of the College of Communication and Information on the recommendation of the student’s faculty committee.

Admission and Assistance for College-Wide Degrees
Applicants must meet admission requirements of the Graduate Council. In addition, they must complete the Graduate Record Examination, rating forms, and application forms as required by the College of Communication and Information. All application materials are screened by an admissions committee authorized by the faculty of the College of Communication and Information.

New students normally begin classes in the fall semester. Applications for both admission and financial aid are due on February 1.

Graduate assistantships are available for students in college-wide programs. Assistantships may be for teaching or research. Assistantships are highly competitive and carry a waiver of tuition and fees as well as a stipend and require that recipients work 10-20 hours per week in the college.

For application forms and other information about college-wide graduate programs in Communication and Information, write to Associate Dean for Academics, College of Communication and Information, 420 Communications Building, the University of Tennessee, Knoxville, Tennessee 37996-0347 or go to http://www.cci.utk.edu/gradstudies.
MASTER OF SCIENCE
COMMUNICATION AND INFORMATION
MAJOR

The Master of Science with a major in communication and information is intended for students who desire careers related to a variety of communication, information, or media fields, and those who seek a deeper understanding of the role of communication and information in organizations, media, and society. Both thesis and non-thesis options are available. See catalog listings for the School of Advertising and Public Relations, School of Communication Studies, and the School of Journalism and Electronic Media for information about concentrations and the courses offered.

Admission

A baccalaureate degree in communication, information sciences, or a related field is recommended. Admission is possible with other baccalaureate degrees. However, all applicants without the appropriate background may be required to take up to 18 semester hours of prerequisite and corequisite courses as determined by the school in which the student is enrolled. Master’s students who have had no courses in their major area of concentration may expect to spend four or more full-time semesters in the program.

Minimum requirements normally include a 3.0 (4.0 system) grade point average in undergraduate studies and scores at or above the fiftieth percentile in verbal, quantitative, and analytical aptitude on the Graduate Record Examination.

Requirements

The MS program combines a cross-disciplinary core in theory and methods with a concentrated set of courses in a primary area and electives from outside the concentration. Both the thesis and non-thesis options require a minimum of 34 hours of approved graduate work.

Core (7 hours)

Communication and Information 501 (Orientation, 1 hour), Communication and Information 540 (Theory, 3 hours), and a research methods course (Advertising 530, Communication Studies 505, Information Sciences 540, or Journalism and Electronic Media 512) to be taken during the first two semesters of the student’s program, except with the written approval of the Associate Dean of Academics of the college.

Concentration (15 hours)

Concentrations are typically housed within one of the academic units. Students may also construct their own coherent set of courses for a concentration with the approval of the Associate Dean for Academics for the college. At least 6 hours of the concentration must be at the 500 level or above.

Approved Electives

Six hours of electives for students in the thesis option, or 9 hours of elective for students in the non-thesis option.

Thesis or Project

Six hours of thesis work, or a 3-hour project.

Other Requirements

All students must take courses from at least two of the schools in the College of Communication and Information.

Additional hours may be required for those who do not have academic prerequisites.

Students interested in subsequent entry into a doctoral program are advised to pursue the thesis option and to take additional courses in communication theory and research, subject to advisor’s approval. After completion of the formal program of coursework and research for the thesis option, the student must pass an oral examination conducted by his/her graduate committee.

Students interested in pursuing careers as communication and information practitioners are advised to complete a project.

This non-thesis option requires a written comprehensive examination and an oral defense of the project.

DOCTOR OF PHILOSOPHY
COMMUNICATION AND INFORMATION
MAJOR

The PhD with a major in communication and information is intended to prepare scholars for teaching, research, administration, and service in the fields of communication and information. The goal of the PhD program is to prepare graduates for positions in research-intensive institutions. This preparation will also enable them to work at other types of educational institutions and industry positions. Doctoral students develop publishable research in their coursework, and provide evidence of publishable research prior to taking comprehensive exams. Graduates are expected to be competent in using at least one research method and should be literate in statistics. The program includes training in the foundational origins and contemporary literature of communication and information theories and professions. The program offers the opportunity for students to learn to be good teachers and to participate in service and outreach activities.

The program is interdisciplinary, consisting of a required core curriculum and primary and cognate areas of study. Core courses begin in the fall semester. The first fall and spring semesters must be spent in residence (i.e., enrolled as a full-time student). Attendance at a full orientation session is required.

Admission

The master’s degree is required for entry into the doctoral program. Students lacking academic or professional experience in communication and information may be required to take prerequisite courses.

The following are normally minimal requirements for admission to full potential candidate status.

- A 3.0 (4.0 system) grade point average in undergraduate studies, and 3.5 for graduate work.
- At or above the fiftieth percentile in verbal, quantitative and analytical aptitude on the Graduate Record Examination.
- Recommendation letters from at least three former teachers or professional colleagues.
- A statement of the applicant’s goals and reasons for pursuing the doctorate. Personal interviews with members of the PhD Admissions Committee are recommended and may be required. Professional experience in some field of communication and/or information is a highly desirable criterion for admission.
- For students whose native language is not English and who have not earned an earlier degree at an American college or university, the Test of English as a Foreign Language is required. Students should show mastery of the English language.

Requirements

A minimum of 61 hours of approved graduate work is required for the PhD.

Core courses (16-18 hours)

Communication and Information 610 and 615; 3 hours of statistics; and 1 to 3 hours of Communication and Information 620.

Primary Concentration

Twelve hours in a primary concentration as defined by the student and his/her program committee.

Cognate Area

Nine hours in a cognate area as defined by the student and his/her program committee.

Dissertation

Twenty-four hours of dissertation.
Other Requirements

Within the primary concentration and cognate areas, a total of 6 credit hours must be from theory-intensive courses and 6 hours must be from methods-intensive classes. Courses both inside and outside the college (including graduate-level courses in the schools) may be identified as theory- and/or method-intensive. A list of eligible courses will be provided for students. Students may also submit courses to their program committee for consideration as theory- and/or method-intensive.

All courses require the approval of the student’s program committee. The program committee is assembled in the first semester of the student’s studies. A program plan must be submitted no later than the end of the second semester of study. The program plan may be subsequently revised as needed.

Admission to candidacy must be attained at least two semesters prior to graduation and requires successful completion of a written comprehensive examination.

Each doctoral student’s progress will be reviewed annually by the Graduate Committee of the College of Communication and Information in conjunction with the program committee chair. Results will be reported to the student by his/her program committee chair, who will convey the graduate committee’s recommendation concerning the student’s status in the program and suggestions for improvement in performance.

Planned course offerings in the College of Communication and Information for a full calendar year are available the preceding November. This information is available from the Graduate Studies Office, 420 Communications Building, 865-974-6651. Also see courses offered under the following academic disciplines – advertising, communication studies, information sciences, journalism and electronic media, and public relations.

SCHOOL OF ADVERTISING AND PUBLIC RELATIONS

http://www.cci.utk.edu/~advpr
Ronald E. Taylor, Director

Professors
Haley, E., PhD .................................................. Georgia
Hovland, R., PhD ............................................. Illinois
Hoy, M., PhD .................................................. Oklahoma State
Taylor, R.E., PhD .......................................... Illinois

Associate Professors
McMillian, S., PhD ........................................... Oregon
Morrison, M., PhD ........................................... Georgia
White, C.L., PhD ............................................. Georgia

Assistant Professors
Blakeman, R., MA ........................................... Southern Methodist
Fall, L.T., PhD .............................................. Michigan State
Haygood, D., PhD ........................................... North Carolina
Palenchar, M., PhD ......................................... Florida

SCHOOL OF COMMUNICATION STUDIES

http://www.sis.utk.edu/
Edwin M. Cortez, Director

Professors
Cortez, E.M., PhD ........................................... Southern California
Pemberton, J.M., PhD ...................................... Tennessee
Tenopir, C., PhD ............................................. Illinois

Associate Professors
Bilal, D., PhD ................................................. Florida State
Robinson, W.C., PhD ................................ ...... Illinois
Whitney, G., PhD .......................................... Michigan

Assistant Professors
Allard, S.L., PhD .......................................... Kentucky
Mehra, B., PhD ............................................. Illinois
Sandusky, R.J., PhD ....................................... Illinois

SCHOOL OF INFORMATION SCIENCES

http://www.sis.utk.edu/
Pemberton, J.M., PhD

Professors
Cortez, E.M., PhD ........................................... Southern California
Pemberton, J.M., PhD ...................................... Tennessee
Tenopir, C., PhD ............................................. Illinois

Associate Professors
Bilal, D., PhD ................................................. Florida State
Robinson, W.C., PhD ................................ ...... Illinois
Whitney, G., PhD .......................................... Michigan

Assistant Professors
Allard, S.L., PhD .......................................... Kentucky
Mehra, B., PhD ............................................. Illinois
Sandusky, R.J., PhD ....................................... Illinois

The School of Advertising and Public Relations offers concentration areas in both advertising and public relations for the Master of Science with a major in communication and information and participates in the interdisciplinary doctoral program.

The School of Communication Studies offers a concentration area for the Master of Science with a major in communication and information and participates in the interdisciplinary doctoral program.

Graduate courses in communication studies also provide opportunities for students in a variety of disciplines to investigate how messages can effect changes in the knowledge, the understanding, the ideas, the attitudes, or the behavior of other human beings.

Graduate courses in communication studies also provide opportunities for students in a variety of disciplines to investigate how messages can effect changes in the knowledge, the understanding, the ideas, the attitudes, or the behavior of other human beings.

Admission

Applicants to the information sciences program must have a minimum undergraduate grade point average of 3.0 or a satisfactory graduate degree grade point average for admission as a potential candidate for the MS.
The verbal, quantitative and analytical aptitude portions of the Graduate Record Examination (GRE) are required of all applicants unless a graduate degree has been completed prior to application for admission. Applicants should take the GRE at least one semester in advance of application for admission and are expected to score 1500 points or better.

A personal data sheet and three recommendation forms (obtained from the School of Information Sciences) should be returned to the admissions office of the school. Foreign applicants are required to take the Test of English as a Foreign Language.

**MASTER OF SCIENCE INFORMATION SCIENCES MAJOR**

The program leading to the Master of Science degree with a major in information sciences requires 42 semester hours of graduate courses, including 3 courses required of all students. Either a thesis or a non-thesis option is available, with 6 hours required for thesis credit. At least 33 hours must be taken within the School of Information Sciences curriculum, and up to 9 hours outside of the school can be taken, including a maximum of 6 hours outside the college. No more than 6 hours may be taken from another university.

**Requirements**

Three courses are required of all students – 510, 520, 530. (Students seeking licensure see track requirements below.) These courses address the evolving information environment, organization and representation of information, and information access and retrieval. The courses 510, 520, and 530 are prerequisites to all courses for students enrolled in the MS program.

The faculty regards the following courses as vital to professional success – 540, 550, 560. These courses address research, management and leadership in information organizations, and the concepts of developing and managing collections. One course, 550, serves as a prerequisite to courses in academic, corporate and public library management.

**Individualized Curriculum Approach**

Students, in consultation with their advisor, may wish to pursue a curricular focus to develop an individualized program of study. Graduates of the school have prepared themselves for a variety of careers, including positions as corporate information specialist, public librarian, records manager/archivist, Web page designer, indexer/abstractor, online information retrieval specialist, medical or law librarian, reference librarian, youth services specialist, and many others. Students are encouraged to take advantage of the individualized curricular approach.

Whatever individualized curriculum is chosen, all students who complete the program receive a MS accredited by the American Library Association (ALA).

For those pursuing Tennessee Department of Education licensure as a school library information specialist, stipulated requirements apply. See the following section.

**Tennessee State Department of Education School Library Information Specialist Requirements**

The Tennessee State Department of Education requires School Library Information Specialists to hold the master’s degree. The School of Information Sciences offers four tracks for school library information specialist endorsement.

**Initial Endorsement for Non-Licensed Teachers with no Master’s Degree in Library or Information Sciences**

For those students who do not hold the master’s degree, the requirements for initial endorsement include the three required courses plus 551, 567, 571, 572, 585, and 596 (which must be taken twice). Upon completion of the requirements, students will earn a Tennessee State Department of Education license as a School Library Information Specialist.

**Initial Endorsement for Non-Licensed Teachers with a Master’s Degree in Library or Information Sciences**

For those students who hold an ALA-accredited master’s degree and have approval of the faculty advisor, the requirements are a maximum of 24 hours within the school’s program, including the required Information Sciences 595. In addition, students must complete three corequisite courses from the College of Education, Health, and Human Sciences (6 credit hours) beyond the required 24 hours. Upon completion of the requirements, students will earn a Tennessee State Department of Education license as a School Library Information Specialist.

**Additional Endorsement for Licensed Teachers with a Master’s Degree**

The requirements include the three required courses plus 551, 567, 571, 572, 585, and 596 (which must be taken twice) plus 5 electives (upon approval of the faculty advisor). Upon completion of the requirements, students will earn a master’s degree in Information Sciences and a Tennessee State Department of Education additional endorsement as a School Library Information Specialist.

**Additional Endorsement for Licensed Teachers without a Master’s Degree**

The requirements include the three required courses plus 551, 567, 571, 572, 585, and 596 (which must be taken twice) plus 5 electives (upon approval of the faculty advisor). Upon completion of the requirements, students will earn a master’s degree in Information Sciences and a Tennessee State Department of Education additional endorsement as a School Library Information Specialist.

**Additional Program Requirements Thesis Option**

Students electing the thesis option will write a master’s thesis under close supervision of a thesis committee. Six hours of Thesis (Information Sciences 500) must be taken within the 42 hours required for graduation. (Students may register for more than 6 hours of 500, but only 6 hours will count toward graduation.) Students must be registered for Information Sciences 500 in the semester they complete and defend their thesis. The oral defense of the thesis (final comprehensive examination) substitutes for the written examination that is taken by non-thesis students. The writing of the master’s thesis serves as the culminating experience.

**Non-Thesis Option**

Upon completion of the program, all students who elect the non-thesis option must take and pass a written comprehensive examination. Students may take no more than a total of 12 hours from 591, 594, 599. The number of satisfactory/no credit courses in a student’s program is limited to one-fourth of the total credit hours required (10 of 42).

**Financial Assistance Opportunities**

Employment with the University of Tennessee Libraries may provide a work-study opportunity for selected students who wish to obtain experience in academic librarianship while pursuing the degree. Such students usually work at least 20 hours each week and thus may extend the period required for the degree. Similar opportunities exist with some other libraries and information agencies in the Knoxville area.

Work opportunities in a scientific-technical environment are available through subcontracts with Oak Ridge National Laboratory and the Department of Energy.

A limited number of graduate teaching assistantships are available through the school. Assistantships of this type carry a waiver of tuition and fees as well as a stipend and require that recipients work 10 hours per week in the school.
For application forms and information about financial aid and other information about the Master of Science with a major in information sciences, write to Admissions, College of Communication and Information, The University of Tennessee, Knoxville, 451 Communications Building, Knoxville, Tennessee 37996.

SCHOOL OF JOURNALISM AND ELECTRONIC MEDIA

http://www.cci.utk.edu/~jem/
Norman R. Swan, Interim Director

Professors
Ashdown, P.G., PhD .......................... Bowling Green
Bates, B.J., PhD ................................ Michigan
Bowles, D., PhD .............................. Wisconsin
Caudill, C.E., PhD ............................. North Carolina
Littmann, M. (Chair of Excellence), PhD ........ Northwestern
Moore, B.A., PhD ............................. Ohio
Swan, N.R., PhD .............................. Missouri
Teeter, Jr., D.L., PhD ........................ Wisconsin

Associate Professors
Foley, D.J., MSJ ................................ Northwestern
Harmon, M., PhD .............................. Ohio
Heller, R.B., MA .............................. Syracuse
Kaye, B., PhD ................................. Florida State
Luther, C., PhD ................................. Minnesota

Assistant Professors
Clark, N., PhD ................................. Florida
Legg, J.R., PhD ................................. Ohio
LePre, L., PhD ................................. Florida

Instructor
Hufford, B.L., MEd ............................ Bowling Green

Emeritus Faculty
Leiter, B.K., PhD .............................. Southern Illinois

MAJORS
Communication and Information
MS, PhD

The School of Journalism and Electronic Media offers a concentration area with professional and research tracks for the Master of Science with a major in communication and information and participates in the interdisciplinary doctoral program.
The College of Education, Health, and Human Sciences was created in 2002 through a merger of the former College of Education and the former College of Human Ecology. The merger of these two colleges, both with rich histories and exemplary records of achievement, resulted from a recognition of complementary institutional missions and a belief that the two colleges, as one, would become more effective in dealing with the complex challenges facing families, schools, and communities in the 21st century.

The union of Education and Human Ecology to form the College of Education, Health, and Human Sciences honors its past independent accomplishments but is now focused on an interdependent future. The College of Education, Health, and Human Sciences is a people-centered college that is intent on enhancing significant aspects of the human condition and, with its disciplines located at the intersection of many of societies greatest challenges, is positioned to make a significant difference through its programs of study, research, and outreach.

The Teacher Education Program at the University of Tennessee is accredited by the National Council for Accreditation of Teacher Education (NCATE), www.ncate.org. This accreditation covers the initial teacher preparation programs and advanced educator preparation programs.

The College of Education, Health, and Human Sciences holds accreditation with the American Association of Family and Consumer Sciences. Among its accredited academic programs are the following – Mental Health Counseling and School Counseling by the Council for Accreditation of Counseling and Related Educational Programs; Education of the Deaf and Hard of Hearing by the Council on Education of the Deaf; Rehabilitation Counseling by the Council on Rehabilitation Education; School Psychology by the American Psychological Association and the National Association of School Psychologists; Sport Management (Graduate Level) by the NASSM/NASPE Sport Management Program Review Council; Dietetics by the American Dietetics Association; Recreation and Tourism Management by the National Recreation and Park Association/American Association for Leisure and Recreation.

Facilities for research and service include the Academic Enrichment Program, the Affymetrix MicroArray Core Facility, the Appalachian Collaborative Center for Learning, the Assessment and Instruction in Mathematics, the Appalachian Rural Systemic Initiative, the Center on Deafness, the Center for Literacy Studies, the Center for Physical Activity and Health, the Child Development Laboratory, the Community Health Research Group, the Cornerstone, the Educational Interpreting Program, the Educational Opportunity Center, the Family Life Project, the Gerber Grant Project, Gradkids, the High School Equivalency Program, the Institute for Assessment and Evaluation, the Instructional Services Center, the Least Restrictive Environment for Life Project, the Math and Science Regional Center, the Nutrition Institute, the Orientation to Deafness Program, the Pre-College Upward Bound Program, Project Impact, Project Wave, the Reading Center, the Regional Rehabilitation Continuing Education Program, the Rehabilitation Counseling in Deafness Program, the Rehabilitation Counseling Program, the Small Animal Research Lab, the Southeastern Regional Interpreter Training Consortium, the Talent Search Program, the Technology Enhanced Curriculum Lab, the Tennessee Career Information Delivery System, the Tennessee’s Early Intervention System, the THEC Minority Teacher Education Project, the Tourism Institute, the UT-TIE, the Urban Impact Project, and the Veterans’ Pre-College Program.

Teacher Education

Postbaccalaureate students who desire to become teachers (i.e., Pre-Kindergarten-Grade 12) must make application to the College of Education, Health, and Human Sciences’ Teacher Education Program and complete the equivalent of an undergraduate minor in education before enrolling in required graduate courses. Information on admission to Teacher Education and prerequisite undergraduate courses is available through the Undergraduate Catalog, the college’s Student Services Center (Claxton Complex A332) or at http://cehhs.utk.edu/main.html.
DOCTOR OF PHILOSOPHY
EDUCATION MAJOR

Application Process

Individuals seeking admission to the Doctor of Philosophy with a major in education must first be admissible to the University of Tennessee, Knoxville, (see Admission Requirements in the Graduate Studies section at the front of this catalog) and then admitted to a concentration within the PhD with a major in Education. Prospective students are encouraged to make application at least six months before anticipated matriculation or one year in advance for school psychology (i.e., Deadline January 1.) An online application process is available at http://www.cehhs.utk.edu/departments.html.

Admission Criteria

Admission decisions for applicants to the PhD in Education are based on multiple criteria. Applicants are expected to present verbal and quantitative GRE scores equal to or higher than the 50th percentile, based on the norms in effect at the time the test was taken. An applicant with either a verbal or quantitative subtest score that is less than the 50th percentile will be expected to submit a proportionally higher, off-setting second subtest score (e.g., a verbal subtest score at the 60th percentile may off-set a quantitative subtest core at the 40th percentile). Current GRE verbal and quantitative interpretative data are available from Educational Testing Service at http://www.ets.org.

Residence Requirement

The residence requirement for students in the PhD with a major in education is two consecutive semesters of full-time enrollment.

Contact Information

Additional information on the PhD with a major in education is available in the academic department sections of this catalog, through the college’s Student Services Center, Claxton Complex A332, or at http://web.utk.edu/~cehhsstu/.
and family studies graduate programs seek to produce researchers, scholars, and educators who are capable of independent investigation of family and developmental processes. Students also receive training in how to conduct scientifically-based assessments of prevention, intervention and educational strategies. Many opportunities exist in child and family studies for graduate students to become involved in research on children, youth, and families. The central premise of graduate programs in child and family studies is the idea that scientific inquiry provides the most effective means to improve the welfare of children, youth and families.

A cornerstone idea for child and family studies graduate programs is development in context, or the perspective that human development is best understood in terms of interconnections among families, neighborhoods, schools, communities, cultures, and international environments. A more specific focus within this development in context perspective is an emphasis on children, youth, and families at risk. Together, these two themes, development in context and children, youth, and families at risk, are the foundations upon which our graduate curriculum options are structured.

Admission
A completed file for review includes a departmental application, Graduate Record Examination (GRE) scores for the general section, and completion of three Graduate Rating Forms by individuals who can attest to the applicant’s potential for graduate education. Forms may be obtained from the department or departmental link on the college Web site.

Admission to the program is contingent upon faculty evaluation of GRE scores, undergraduate/graduate GPA, rating forms, work experience, and the match between student’s goals and department’s focus. Prerequisites for admission to the master’s program are 9 semester hours of upper-division undergraduate social science.

Prerequisites to the doctoral program are a master’s degree from a regionally accredited institution or equivalent, completion of the 12-hour foundation core in the child and family studies master’s program, 3 hours of computationally-based, graduate-level statistics, and completion of a thesis as part of the master’s degree.

MASTER OF SCIENCE CHILD AND FAMILY STUDIES MAJOR

The Master of Science degree with a major in child and family studies provides a broad foundation for understanding how children develop and how families function in today’s society. All master’s candidates enroll in foundation courses which include theoretical and empirical surveys of the human development, child development, and family science literatures plus a survey of methods of discovery used in child and family research. All MS students are expected to engage in productive research culminating in a thesis or project. Students choose to concentrate either in child and family studies, leading to doctoral study or careers in community agencies serving children and families, or early childhood education, leading to an educator career in early childhood or school settings. The early childhood education concentration is ordinarily restricted to students currently enrolled in the undergraduate fifth-year licensure program at the University of Tennessee, Knoxville.

CHILD AND FAMILY STUDIES CONCENTRATION

Requirements
The child and family studies concentration requires a minimum of 36 hours of coursework — 12 hours in foundation coursework and 24 hours in specialization. The specialization credit hours are selected with guidance of the student’s master’s committee. Students seeking the MS with a major in child and family studies must select a master’s committee chair and file a plan of study with the department head after 12 hours of graduate credit.

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Description</th>
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<tbody>
<tr>
<td>9</td>
<td>Child and Family Studies Foundation Courses</td>
</tr>
<tr>
<td>3</td>
<td>Computation-based Statistics</td>
</tr>
<tr>
<td>9</td>
<td>Child and Family Studies Specialization Electives</td>
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<tr>
<td>6</td>
<td>General Electives</td>
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<tr>
<td>6</td>
<td>Thesis Research (Child and Family Studies 500)</td>
</tr>
<tr>
<td>Total 36</td>
<td></td>
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</tbody>
</table>

2. Statistics 531 or 537 or Social Work 605 or Educational Psychology 577.
3. Three child and family studies graduate courses (may not include Child and Family Studies 572, 581, or 620). Only 3 hours of Child and Family Studies 580 or 610 may be included.
4. Courses may be child and family studies courses or may include courses from outside the child and family studies curriculum.

EARLY CHILDHOOD EDUCATION CONCENTRATION

Requirements
The early childhood education concentration is designed for students seeking a MS along with initial teacher licensure in early childhood education (PreK through Grade 4). At the University of Tennessee, Knoxville, students interested in the MS with a major in child and family studies (early childhood education concentration) must apply for admission to graduate study through the procedures outlined above. (Application for admission to the fifth-year teacher licensure program in child and family studies, early childhood education, is a part of the application process to the graduate program and is described in the Undergraduate Catalog. Admission to the fifth-year teacher licensure program is concurrent with admission to the child and family studies master’s program.) The early childhood education concentration requires 39 hours of coursework and a written comprehensive exam.

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Child and Family Studies Foundation Courses</td>
</tr>
<tr>
<td>24</td>
<td>Childhood Education Core (includes licensure)</td>
</tr>
<tr>
<td>3</td>
<td>Computation or Consumer-based Statistics</td>
</tr>
<tr>
<td>3</td>
<td>Childhood Education Specialization Elective</td>
</tr>
<tr>
<td>Total 39</td>
<td></td>
</tr>
</tbody>
</table>

2. Child and Family Studies 512 (3), 569 (3) 574 (2), 575 (12), 591 (4).
3. Students complete an action research project in Child and Family Studies 569.
4. Statistics 531 or 537 or Social Work 605 or Educational Psychology 550 or Educational Psychology 577.
5. Elected from list of courses with prior committee approval.

DOCTOR OF PHILOSOPHY HUMAN ECOLOGY MAJOR

CHILD AND FAMILY STUDIES CONCENTRATION

The department supports a doctoral program leading to a PhD with a major in human ecology. Two themes are highlighted – the integration of human development and family studies and concentration in a selected area of study. A doctoral program that is concurrently specialized and integrative in nature reflects the complexity of the disciplinary subject matter, provides a broader context to formulate theoretical questions, and broadens the empirical literature for addressing these questions. The PhD is primarily a research degree. A core component of the program focuses on the development of expertise in research methods and statistics so that graduate students are capable of advancing knowledge in their field of study.
DEPARTMENT OF
EDUCATIONAL PSYCHOLOGY
AND COUNSELING
http://web.utk.edu/~Edpsych/
R. Steve McCallum, Head
Tricia McClam, Associate Head, Graduate Liaison

Professors
Bogue, E.G., EdD ...........................................Memphis State
Brockett, R., PhD .............................................Syracuse
George, T. (Associate Dean), EdD .......................Tennessee
Greenberg, K., PhD .........................................George Peabody
Huck, S., PhD ...............................................Northwestern
Kronick, R., PhD ...........................................Tennessee
McCallum, R.S., PhD .....................................Georgia
McClam, T., PhD ............................................South Carolina
Mertz, N., EdD ...............................................Columbia
Peters, J., EdD ..............................................North Carolina State
Peterson, M., PhD ...........................................Ohio State
Skinner, C., PhD ...........................................Lehigh
Williams, R., PhD ...........................................George Peabody
Woodside, M., EdD .........................................Virginia Tech

Associate Professors
Bain, S., PhD .................................................Southern Mississippi
Diambra, J., EdD ...........................................William & Mary
Studer, J., EdD ..............................................Toledo
Ziegler, M., EdD .............................................Columbia

Assistant Professors
Paulus, T., PhD .............................................Indiana
Skinner, A., PhD ...........................................Mississippi State
Strayhorn, T.L., PhD .....................................Virginia Tech

Research Professors
Colvin, C., EdD .............................................Virginia
Grubb, L.A., PhD ..........................................Tennessee
Mulkey, S., PhD ...........................................Florida State

MAJORS
College Student Personnel ........................................MS
Counseling ................................................................MS
  Mental health counseling concentration
  Rehabilitation counseling concentration
  School counseling concentration
Educational Psychology ............................................MS
  Adult education concentration
  Applied educational psychology concentration
School Counseling .................................................EdS
  School Psychology ..........................................EdS

Education
  Counselor education concentration
    (specializations in career development; rehabilitation; group process)
Educational psychology concentration
  (specializations in adult education; applied educational psychology; collaborative learning)
Higher education administration concentration
  School psychology concentration

EDUCATIONAL PSYCHOLOGY

Educational psychology offers individuals a choice of two concentrations at the master’s level and three PhD specializations. These options meet the needs of students with varying interests within the broad field of educational psychology. The areas of adult education, applied educational psychology, and collaborative learning are linked by a common interest in human development, teaching and learning, and methods of inquiry. Educational psychology prepares students with diverse backgrounds for leadership roles in education across the life span and in facilitation of improved professional practices. Together, a community of learners is created and students and faculty members regularly share with and learn from one another through collaborative scholarship. Graduates are employed in such areas as higher education, K-12 education, business and industry, nonprofit, and community service agencies.

Adult Education
http://web.utk.edu/~adulted/
The adult education program is designed for those interested in providing learning opportunities for adults. It is intended for educators of adults in a wide range of settings such as adult literacy, continuing higher education, business and industry, government and community-based organizations, volunteer agencies, and professional and staff development programs. The program prepares individuals for such roles as program planner, instructor, trainer, and administrator.

Applied Educational Psychology
http://web.utk.edu/~edpsych/grad/app_ed_psych/
The applied educational psychology program is designed for individuals who seek to provide professional leadership in the facilitation of learning and development (at the master’s and doctoral levels). It provides an opportunity to focus on the needs of underachieving and nontraditional learners through application of cognitive education and social constructivist approaches and/or applied statistics and measurement (at the doctoral level). It is intended for individuals focused on careers in a wide range of settings such as higher education, K-12 education, community-based agencies, and research institutions.
The master’s program is often used as a stepping stone to a doctoral program in educational or school psychology or as additional preparation for functioning in professional support roles in schools, mental health centers, and business programs devoted to personal and professional development.
The doctoral program addresses the needs of professionals in educational psychology, as well as others who desire in-depth study at an advanced level on one of two areas of emphasis. Many graduates of this specialization work in higher education or research institutes and focus on human learning and development and/or applied statistics/measurement as it relates to teaching and learning.

Collaborative Learning
http://web.utk.edu/~edpsych/grad/collab_learning/default.html
The collaborative learning program addresses the advanced educational needs of professionals working in a variety of settings including business, government, higher education, and non-profit organizations. Participants study the collaborative
learning process and engage in action research in the context of their own professional practices. A cohort of doctoral students is admitted every other year.

MASTER OF SCIENCE
EDUCATIONAL PSYCHOLOGY MAJOR
ADULT EDUCATION CONCENTRATION

Requirements

The master’s program involves a minimum of 36 hours of coursework (except for the thesis option, which is 33 hours minimum). Programs typically consist of the following:

| Hours Credit |
|---|---|
| Educational Psychology 513, 520, 521, 522, 525. | 1.5 |
| Options could include Educational Psychology 550; Cultural Studies in Education 560, 561; Curriculum, Educational Research, and Evaluation 580; Educational Administration 516; Educational Psychology 530. | 3 |
| This category will include coursework outside of educational psychology that provides a more specialized focus to the program or as a complement to current professional competencies. Some examples of possible supporting areas include higher education administration, counseling, educational administration and supervision, cultural studies, sociology, psychology, human resource development, and agricultural and extension education. | 12+ |

Remaining Coursework

Remaining coursework can be taken in a combination of electives within adult education or coursework in related areas. Examples of courses in educational psychology that meet this expectation include Educational Psychology 460, 504 (recent examples have included Multicultural Perspectives in Adult Education, Learning in the Workplace, and Writing for Professional Publication), 509, 510, 514, 515, 516, 523, 524, 527, 528, 529, 573, 574.

Comprehensive Examination/Thesis

Most students opt to write a comprehensive examination. This involves preparing written responses to questions from the student’s graduate committee. Typically, these are done in a take-home format. However, a thesis option is also available.

The thesis is an original piece of research. Students who opt to write a thesis register for 6 hours of Educational Psychology 500. The final document is presented to the student’s graduate committee and discussed in an oral examination with the committee.

APPLIED EDUCATIONAL PSYCHOLOGY
CONCENTRATION

This master’s program focuses on concepts, principles, techniques and models of educational psychology as they are used to facilitate teaching and learning and the creation of effective classroom environments for learners of all ages. The program includes traditional themes in educational psychology (e.g., human development, learning principles, assessment, and psychosocial intervention). It is unique in its focus on meeting the needs of non-traditional and underachieving learners from birth through adulthood through the use of cognitive education interventions.

The master’s program may be used as a stepping stone for entering a doctoral program in educational or school psychology or as an additional preparation for functioning in an educational role in schools, mental health centers, and business programs devoted to personal and professional development. The faculty members in the Department of Educational Psychology and Counseling are committed to the creation and study of environments that enhance learning potential and promote lifelong learning for people of all ages, abilities, and backgrounds.

Requirements

Students complete 36 hours beyond the baccalaureate degree. A minimum of 24 hours must be at the 500 level or higher. At least 6 hours must be taken outside the department. Students must choose between thesis and non-thesis options. Approved courses are listed below. Equivalent courses may be substituted with the consent of the program committee.

| Hours Credit |
|---|---|
| Educational Psychology 507. | 3 |
| Courses related to human development help students explore the role of development in learning for more and less successful learners. They include a choice of Educational Psychology 510, 522 and/or Psychology 511. | 6 |
| Courses related to learning principles provide an opportunity to compare behavioral and cognitive learning theories in-depth and other theories in comparison. Students may study learning as it relates to adults as well as children. Courses include Educational Psychology 671, and a choice of two of the following courses – Educational Psychology 515, 516, or 522. | 9 |
| Students explore statistics and research from a conceptual perspective. Non-thesis students take Educational Psychology 550. Thesis students take Educational Psychology 577. | 3 |
| The assessment course provides an overview of assessment concepts, approaches, and issues. Students take Counselor Education 525. | 3 |
| The courses related to intervention include exploration of approaches for meeting the needs of nontraditional and underachieving students, program development and facilitation of adult learning, self-management and reflective practice, and facilitation of group change. Students choose two courses from – Educational Psychology 572, 573, and/or 574. | 6 |
| Thesis students take 6 thesis hours toward the 36-hour program in lieu of electives. The thesis involves an original research project. A written document of the research is presented to the student’s graduate committee members and discussed in an oral examination regarding the research. Non-thesis students complete a comprehensive examination. This typically involves the writing of scholarly papers in response to questions from each of the student’s graduate committee members. A minimum of 6 hours of non-thesis electives may be chosen from Educational Psychology 460, 513, 522, 525, and/or 529. | Total 36 |

DOCTOR OF PHILOSOPHY
EDUCATION MAJOR
EDUCATIONAL PSYCHOLOGY
CONCENTRATION

Concentration Core (10 hours)

The concentration core in educational psychology reflects the connections between specializations and their foundation in educational psychology. The core also includes a departmental doctoral seminar that orients new students to doctoral study and scholarly activities. In addition, all students must take as one of their research courses, a departmental course that introduces modes of inquiry through appropriate selection of quantitative and/or qualitative methods. Students may select other research courses according to preference and specialization requirements as described below. Core courses include – Educational Psychology 507, 513, 525, 601.
The concentration core consists of courses as described above. Courses for the specialization are from adult education courses such as those listed under the master’s degree requirements and electives. A departmental course introducing quantitative and qualitative methods is required for all students as a part of the minimum 15 hours of research. To meet the research requirement, students take courses that provide them with knowledge and skills in both quantitative and qualitative research methods. At least 6 hours must be taken in a cognate area outside the College of Education, Health, and Human Sciences. Dissertation hours are taken after all or most coursework is completed. Once a student registers for course 600 (dissertation/research), he/she must continue thereafter register for a minimum of 3 hours every semester until the dissertation is defended and submitted.

APPLIED EDUCATIONAL PSYCHOLOGY SPECIALIZATION

The applied educational psychology program provides study for students with varying interests in the areas of human learning and development or statistics and measurement. Doctoral students selecting the first area of emphasis focus on acquisition and participatory theories of learning and development and the role of the teacher/mediator of learning experiences. Doctoral students selecting the second area of emphasis focus on quantitative methods, research design, and test construction.

This program involves a community of learners in which beginning students, advanced students, and faculty members come together regularly to share with and learn from one another. The cornerstone of this program is a seminar attended by all students (for their first three years) as well as the program’s faculty members. Collaboration on research projects, group trips to professional meetings, and social events also help to create the sense that “I belong; others care about me; and everyone benefits from the group’s array of skills, knowledge, background, and contacts.”

Requirements

The specialization requires a minimum of 88 hours of graduate credit beyond the baccalaureate degree distributed among the following seven categories.

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration Core</td>
</tr>
<tr>
<td>Specialization in Collaborative Learning</td>
</tr>
<tr>
<td>Area of Emphasis</td>
</tr>
<tr>
<td>Research</td>
</tr>
<tr>
<td>Cognate</td>
</tr>
<tr>
<td>Electives</td>
</tr>
<tr>
<td>Dissertation</td>
</tr>
</tbody>
</table>

Total 88

1 The concentration core is described above and includes one designated 3-hour course from each specialization in educational psychology and a 1-hour doctoral seminar, which is taken during the student’s first semester.

2 All applied educational psychology students enroll in 2 hours of the applied educational psychology doctoral seminar during every fall and spring semester during their first three years.

3 Applied educational psychology students select an area of emphasis in either (1) applied statistics and measurement, or (2) human learning and development. For students with the learning/development emphasis, course options include (but are not limited to) mediated learning theory, educational applications of cognitive learning theories, educational applications of behavioral learning theories, collaborative learning, and facilitation of group change. For students with the applied statistics and measurement emphasis, course options include (but are not limited to) survey design and analysis, categorical data analysis, applied multivariate methods, and scale construction.

4 A departmental course introducing quantitative and qualitative methods is required for all students as a part of the minimum 15 hours of research. In addition to this course, students can elect to take a set of courses that deal with quantitative methodologies (e.g., experimental design, seminar in applied psychometrics) or they can elect to take a full set of courses that deal with qualitative methodologies (e.g., phenomenology, discourse analysis, or a survey of qualitative methods) or they can elect to take a mix of these courses.

5 The cognate requires a minimum of two courses outside the Department of Educational Psychology and Counseling. Many students choose psychology or statistics, although many other cognates are possible.

6 Toward the end of the program, each student will take 12 hours of courses that involve the refinement of professional skills including technical or scholarly writing, two independent study course experiences, and an internship in educational psychology. Students planning to teach in a college or university setting are encouraged to take an additional course in instructional design for higher education.

7 All students will enroll in a minimum of 24 hours of dissertation. Further details are described elsewhere in this catalog.

COLLABORATIVE LEARNING SPECIALIZATION

The collaborative learning specialization addresses the advanced educational needs of professionals working in a variety of settings including business, government, higher education, and non-profit organizations. Participants study the collaborative learning process and engage in action research in the context of their own professional practices. A cohort of doctoral students is admitted every other year.

Requirements

Doctoral students in the collaborative learning specialization are expected to complete a minimum of 94 hours of graduate credit beyond the baccalaureate degree. Required is a two-year residency, consisting of six consecutive semesters in which the student will enroll in a minimum of 6-9 hours of coursework in each of four semesters and a minimum of 9 hours in each of two consecutive semesters. These hours are distributed among the following categories.

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration Core in Educational Psychology</td>
</tr>
<tr>
<td>Specialization in Collaborative Learning</td>
</tr>
<tr>
<td>Research Methods</td>
</tr>
<tr>
<td>Cognate</td>
</tr>
<tr>
<td>Electives</td>
</tr>
<tr>
<td>Dissertation Research</td>
</tr>
</tbody>
</table>

Total 94

1 The concentration consists of courses in each specialization and a departmental seminar course as described in the concentration section above.

2 The specialization core consists of four courses in the area of collaborative learning plus the doctoral seminar. Educational Psychology 630 is taken on a continuous basis beginning with the first semester of the student’s residency culminating at the end of the second year of residency, excluding summers. Three hours are awarded per semester for a total of 12 hours of credit.

3 This set of courses includes courses in qualitative and quantitative research methods and statistics.

4 Courses taken in an area outside the major area of study.
MASTER OF SCIENCE
COUNSELING MAJOR
REHABILITATION COUNSELING
CONCENTRATION

The purpose of rehabilitation training programs is to ensure that skilled personnel are available to serve the rehabilitation needs of individuals with disabilities assisted through vocational rehabilitation (VR), supported employment and independent living programs. The University of Tennessee, Knoxville, graduate concentration in rehabilitation counseling is designed to prepare students for professional careers as clinicians in the field of rehabilitation counseling. The rehabilitation counseling concentration is service-oriented and includes practica and internship experiences. Completion of the two year (16 month) program culminates in a Master of Science degree. The program is fully accredited by the Council on Rehabilitation Education, Inc. (CORE).

Students may be admitted to the program either full- or part-time. Full-time students admitted to the program follow a sequence of courses that facilitates degree completion in 16 months. The first (fall) and third (summer) semesters are didactic in nature, but the second semester adds an experiential component under Rehabilitation Counseling 547. The final (fall 2) semester is experiential, with students working full-time to fulfill the 600 clock-hours required of Rehabilitation Counseling 549. Students who are interested in working with people who are deaf or hard of hearing may choose the optional deafness focus area for their Rehabilitation Counseling master's program. This allows individuals who have bachelor degrees in deafness related fields to expand their competencies to serve rehabilitation consumers who are deaf or hard of hearing. Interested students must have knowledge of American Sign Language. Contact Terry Osborne at the Center on Deafness (COD) for details – (865) 974-4134 (Voice/TTY).

Requirements

The recommended course of study for full-time rehabilitation counseling concentration students is:

Fall 1
- Counselor Education 551
- Rehabilitation Counseling 530, 543, 545, 592; 549 (second year students only)

Spring 1
- Educational Psychology 550
- Rehabilitation Counseling 547, 532, 537; 549 (second year students only)
- Elective

Summer 1
- Rehabilitation Counseling 533, 593, 570
- Counselor Education 554

Fall 2
- Rehabilitation Counseling 549 (second year students only)

All rehabilitation counseling courses, with the exception of Rehabilitation Counseling 549, are offered only one semester per year. Students who are admitted to the program must meet with an advisor each semester to plan their studies.

Program Contacts

Dr. Amy L. Skinner, LPC, CRC, NCC Program Coordinator, askinner@utk.edu
Terry Osborne, Instructor and Deafness-Focus Area Advisor, osborne@utk.edu
MASTER OF SCIENCE
COUNSELING MAJOR

SCHOOL COUNSELING CONCENTRATION

The master’s program in school counseling (48 hours) is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). The purpose of the program is to develop graduates who will assume the major responsibilities of a counselor within elementary and secondary schools. Applicants for degrees in this field must present satisfactory evidence of academic ability, adequacy of personal characteristics and goals as determined by recommendations of employers, instructors, and colleagues, and by scores of the aptitude portion of the Graduate Record Examination. The program requires a 600-hour internship in a school site during the second year to prepare students for practice. Students enrolled complete a program that includes core courses, clinical courses, and electives. Those applicants who have not had teaching experience may be required to complete additional classes. Graduates will fulfill the license requirements for PreK-12 School Counseling in Tennessee and in most states of the United States although some states may have additional experience and testing requirements.

Requirements

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counselor Education 431, 525, 550, 551, 552, 553, 554</td>
<td>21</td>
</tr>
<tr>
<td>Educational Psychology 550</td>
<td>3</td>
</tr>
<tr>
<td><strong>Year 1 Total 24</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counselor Education 555</td>
<td>3</td>
</tr>
<tr>
<td>Counselor Education 558</td>
<td>6</td>
</tr>
<tr>
<td>Counselor Education 561, 570</td>
<td>6</td>
</tr>
<tr>
<td>Educational Psychology 510, 515</td>
<td>6</td>
</tr>
<tr>
<td>*Special Education 470</td>
<td>3</td>
</tr>
<tr>
<td><strong>Education 589</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Year 2 Total 24 or 27</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Program Hours 48 or 51</strong></td>
<td></td>
</tr>
</tbody>
</table>

* Individuals with teaching license can substitute an elective for this course.

** Required for individuals without a teaching license.

SPECIALIST IN EDUCATION
SCHOOL COUNSELING MAJOR

The Specialist in Education with a major in school counseling is a post-master’s program designed to provide advanced training for school counselors and others with a master’s degree in a related area. Graduates must complete at least 60 semester hours beyond the bachelor’s degree. Applicants for a degree in this field must present satisfactory evidence of academic ability, adequacy of personal characteristics and goals as determined by recommendations of employers, instructors, and colleagues, and by scores of the aptitude portion of the Graduate Record Examination. The program can serve the educational needs of experienced counselors whose original training predated many recent advancements in counseling; students holding a master’s degree in guidance but wanting additional training; individuals who wish to shift from one setting or level of counseling to another; and students from related areas who want to enter the school counseling profession.

Those applicants who have not had teaching experience may be required to complete additional classes. Graduates who desire to fulfill the licensure requirements for K-12 School Counseling in Tennessee and in most states of the United States are required to fulfill all the requirements for a licensure endorsement. (Students without a license in school counseling are required to complete those requirements before obtaining the EdS with a major in school counseling.)

For a student with a School Counselor License, the Specialist in Education program requires 22 hours beyond the master’s. The program is individualized and planned by the student and a faculty committee. A minimum of 6 hours is required from outside the counselor education program.

Requirements

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Counseling Core</td>
<td>21</td>
</tr>
<tr>
<td>Courses outside the program area (6 hours of electives)</td>
<td>13</td>
</tr>
<tr>
<td>General Elective</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total program hours 22</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. Counselor Education 504, 555, 570, 650, 659.

DOCTOR OF PHILOSOPHY
EDUCATION MAJOR

COUNSELOR EDUCATION CONCENTRATION

The doctoral concentration in counselor education at the University of Tennessee is designed to prepare experienced counseling professionals to advance their careers in the education, supervision, and research of counselors. The doctoral program is for those students who have completed a master’s degree in counseling or counseling-related fields who aspire to careers in areas such as college, university, or community college teaching positions in counselor education or related fields; supervisory positions in schools, community agencies, state departments of education; counseling positions in student development programs and counseling centers in higher education; and/or private mental health counseling/consultation practice employee assistance programs.

The doctoral program requires advanced coursework, internship, and dissertation hours of study beyond the master’s degree. Students in the PhD concentration in counselor education will work toward endorsement for counseling licensure, if licensure has not been received prior to entering the doctoral program. During the program doctoral students will review the necessary criteria for the license they seek and will plan to meet those criteria. Preference is given to those with a 3.5 GPA on any graduate work completed prior to application. Preference is also given to students who score equal to or higher than the 70th percentile on the verbal and the 50th percentile on the quantitative area of the GRE, based on the norms that were in effect when the test was taken, and a 4.5 on the Analytic Writing subtest. To be considered for acceptance, the applicant must have

- Master’s degree in counseling or counselor-related field.
- Minimum of two years of work experience in counseling or counseling-related field.
- Fitness for the program, including self-awareness and emotional stability as indicated by references and interview.
- Potential for leadership and advocacy as indicated by references, publications, presentations, and other professional activities.
- Expertise in technological applications.

In addition, general graduate admission standards for international students require a transcript from the home country indicating an equivalent of the University of Tennessee grade point average of 3.0 or higher. Official results of TOEFL must be submitted. A minimum score of 213 on the computer-based test, 550 on the paper test, or 80 on the Internet-based Test typically with a score of 20 on each of the sections of the test (reading, listening, writing, and speaking), and scores on the GRE that meet the admission requirements.
Requirements

Coursework for the program in counseling education includes the following.

| Concentration (not counselor education) | .33 |
| Cognate                                    | .6 |
| Research                                   | .15 |
| Dissertation                               | .24 |
| Total                                      | 97 |

More detailed information about coursework is available in the program handbook and through the advising process.

HIGHER EDUCATION ADMINISTRATION

Under Higher Education Administration, two programs are offered – a major in college student personnel and a concentration in higher education administration with a major in education under the PhD.

MASTER OF SCIENCE

COLLEGE STUDENT PERSONNEL MAJOR

The college student personnel program is a two-year, practitioner-oriented master's degree designed to prepare student personnel administrators and administrative needs of colleges and universities. Philosophically based in college and university administration and resting on standards articulated by the Council for Advancement of Standards for Student Services/Student Development programs, the program prepares individuals for a wide and growing variety of student and university service positions in post-secondary institutions including admissions, orientation, records, financial aid, academic advising, housing, athletics, disability services, career services, student activities and leadership development, institutional research and assessment, advancement and alumni relations, Greek life, and international education.

Admission

Students are admitted to the college student personnel program each spring for matriculation in the fall. Prospective students must submit current GRE scores (within the past five years). In addition, the following information must be submitted to the department office (program coordinator) by March 1st – College Student Personnel Program Application form, 3 rating/reference forms, application to the Office of Graduate and International Admissions. It is recommended that all materials be submitted by February 15.

Requirements

The college student personnel program requires a minimum of 36 hours, including 6 hours of practicum experience. Students are required to complete either a thesis or problems-in-lieu of thesis as a culminating activity.

DOCTOR OF PHILOSOPHY

EDUCATION MAJOR

HIGHER EDUCATION ADMINISTRATION CONCENTRATION

The concentration in higher education administration under the PhD with a major in education offers advanced graduate study to those students aspiring to enhance their leadership knowledge and skill for service in their current positions, to establish knowledge and skill bases for more responsible executive leadership appointment, to build the capacity and inclination for active participation in policy dialogue related to the purpose and performance of higher education, and to prepare selected scholars for service in faculty and policy scholar roles. Interdisciplinary in design, the program features core coursework in higher education foundations, leadership and organizational theory, research foundations, and specialization interests. The program also features forum and seminar experiences for all students in a humanities and research seminar in the first year of the program and an Issues and Inquiry Seminar in the second year of the program.

Admission

Applicants must submit current (taken within the past 5 years) GRE scores that equal or exceed the minimums expected for applications to the PhD with a major in Education (see the PhD in Education section of this catalog for those details). Applicant must also submit three letters of recommendation, Graduate Application for Admission, Application for PhD study for the college and department, official transcripts of all previous undergraduate and graduate work, and a writing sample. An overall GPA of 3.3 in previous graduate study is required, and an interview may be requested of applicants to ascertain match of an applicant's goals with resources and goals of the program.

Requirements

The program requires completion of approximately 48-57 hours of coursework (exclusive of dissertation enrollment), completion of a written and oral comprehensive examination (an overall GPA of 3.5 is required to take the comprehensive examination), and successful completion and defense of dissertation. The doctoral residence requirement is met by two consecutive terms of full-time enrollment.

SCHOOL PSYCHOLOGY

http://web.utk.edu/~edpsych/grad/school_psych/default.html.

The school psychology programs are based on a data-based decision-making model and offer advanced training in psychological, educational, and professional foundations including training in assessment, research, consultation, and intervention. Two degree programs are offered – the Specialist in Education and the Doctor of Philosophy. The school psychology programs are accredited or approved by the relevant bodies including the American Psychological Association (APA), the National Association of School Psychologists (NASP), the National Council for Accreditation of Teacher Education (NCATE), and the Tennessee Department of Education. Admission occurs once a year and materials are due by January 5.

SPECIALIST IN EDUCATION

SCHOOL PSYCHOLOGY MAJOR

Every school psychology student is expected to meet the University of Tennessee, Knoxville, school psychology training programs knowledge and skill requirements. Opportunities for students to meet these requirements will occur in the classroom and during field experiences. The school psychology faculty, along with current and previous students, practica and internship supervisors, and various other groups who help ensure quality control within our training programs, have contributed to the development of our curricula. Various accrediting and curricula oversight agencies (i.e., NASP, SDE-Tennessee) have their own specific goals and objectives. The School Psychology Handbook, published by the Educational Psychology and Counseling Department, describes how the University of Tennessee, Knoxville, school psychology training programs meet the goals and objectives of these various training groups. The University of Tennessee, Knoxville, program is designed to provide graded, sequential, and hierarchical training across the following areas –
professional school psychology; consultation and intervention; assessment; research and statistics; psychoeducational core; and field experience and professional practice.

**Requirements**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Professional School Psychology</td>
<td>15-30</td>
<td>118</td>
</tr>
<tr>
<td>2Consultation and Intervention</td>
<td>24</td>
<td>118</td>
</tr>
<tr>
<td>3Assessment</td>
<td>21</td>
<td>118</td>
</tr>
<tr>
<td>4Research and Statistics</td>
<td>37-44</td>
<td>118</td>
</tr>
<tr>
<td>5Psychoeducational Core</td>
<td>35-39</td>
<td>118</td>
</tr>
</tbody>
</table>

1 Educational Psychology 635; School Psychology 540, 549 (2), 650 (2-4); Special Education 470.
2 Counselor Education 551: Group Process and Change Option (3); Educational Psychology 515, 516, 517; School Psychology 545, 546, 549 (2).
3 Counselor Education 525; Educational Psychology 517; School Psychology 541 (3,3), 542 (3,3), 549 (2).
4 Educational Psychology 577 or Statistics 531; Educational Psychology 655 (2-6) or 505 or 503 (3).
5 Counselor Education 570; Educational Psychology 510; Psychology 461; School Psychology 549 (2), 690, 650 (2-4); Group Processes and Change Option (3); Family Studies Option (3); Social Basis of Behavior Option (3).

**Field and Practica Experiences by Semesters**

**First Year (Spring)**
Knowledge, Roles, and Functions (40-80 clock hours); School Psychology 650 (1)

**Second Year (Fall)**
Introduction to consultation and intervention practices (50-100 clock hours); School Psychology 650 (1)

**Second Year (Spring)**
Develop consultation skills (150-200 clock hours); School Psychology 546 (3)

**Third Year (Fall and Spring)**
Practice professional assessment skills (e.g., administration, interpreting, report writing) (75 clock hours /semester); School Psychology 542 Total clock hours structured field experience prior to internship: 385.

**Fourth Year (Fall and Spring)**
School Psychology 549 (2); knowledge and skill development and mastery (1200-1500 clock hours). A minimum of 600 clock hours in school settings.

**DOCTOR OF PHILOSOPHY**

**EDUCATION MAJOR**

**SCHOOL PSYCHOLOGY CONCENTRATION**

Every school psychology student is expected to meet the University of Tennessee, Knoxville, school psychology training programs knowledge and skill requirements. Opportunities for students to meet these requirements will occur in the classroom and during field experiences. The school psychology faculty, along with current and previous students, practica and internship supervisors, and various other groups who help ensure quality control within our training programs have contributed to the development of our curricula. Various accrediting and curricula oversight agencies (i.e., APA, NASP, SDE-Tennessee) have their own specific goals and objectives. The School Psychology Handbook, published by the Educational Psychology and Counseling Department describes how the University of Tennessee, Knoxville, school psychology training programs meet the goals and objectives of these various training groups. The University of Tennessee, Knoxville, school psychology program is designed to provide graded, sequential, and hierarchical training across the following areas – professional school psychology; consultation and intervention; assessment; research and statistics; psychoeducational core; and field experience and professional practice.

**Requirements**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Professional School Psychology</td>
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</tr>
<tr>
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<tr>
<td>3Assessment</td>
<td>21</td>
<td>118</td>
</tr>
<tr>
<td>4Research and Statistics</td>
<td>37-44</td>
<td>118</td>
</tr>
<tr>
<td>5Psychoeducational Core</td>
<td>35-39</td>
<td>118</td>
</tr>
</tbody>
</table>

1 Educational Psychology 601 (1), 635; School Psychology 540, 649 (3), 650 (3-20); Special Education 470.
2 Counselor Education 551: Group Process and Change Option (3); Educational Psychology 515, 516, 517; School Psychology 545, 546, 649 (3), Educational Psychology 650 (1).
3 Counselor Education 525; Educational Psychology 517; School Psychology 541 (3,3), 542 (3,3), 649 (3).
4 Educational Psychology 577 and 677 or Statistics 531 and 532; Educational Psychology 505, 600 (24), 655 (4-8).
5 Counselor Education 570; Educational Psychology 510; Psychology 420/565, 461; School Psychology 649 (3), 650 (4-8), 690; Curricula-Instruction Option (3); Group Processes and Change Option (3); Family Studies Option (3); Social Basis of Behavior Option (3).

**Field and Practica Experiences by Semester**

**First Year (Spring)**
Knowledge, Roles, and Functions (40-80 clock hours); School Psychology 650 (1) (spring)

**Second Year (Fall)**
Introduction to consultation and intervention practices (50-100 clock hours); School Psychology 650 (1)

**Second Year (Spring)**
Develop consultation skills (150-200 clock hours); School Psychology 546 (3)

**Third Year (Fall and Spring)**
Practice professional assessment skills (e.g., administration, interpreting, report writing) (75 clock hours /semester); School Psychology 542 Total clock hours structured field experience prior to internship: 385.

**Fourth Year (Fall and Spring)**
School Psychology 650 (1-12), Educational Psychology 600 Total clock hours structured field experience prior to internship: 425

**Fifth Year (Fall, Spring, and Summer)**
Practice, Development, and Mastery of Skills (2000 clock hours); School Psychology 649 (3). A minimum of 600 clock hours in school settings.

**DEPARTMENT OF EXERCISE, SPORT, AND LEISURE STUDIES**

http://web.utk.edu/~sals/

Joy T. DeSensi, Head

**Professors**

Bassett, Jr., D.R., PhD ............................. Wisconsin
DeSensi, J.T., EdD ................................. North Carolina (Greensboro)
Hayes, G.A., PhD .................................. North Texas State
Howley, E., PhD ................................. Wisconsin
Wrisberg, C.A., PhD ............................... Michigan

**Associate Professors**

Kelley, D.R., PhD ................................. Georgia State
Thompson, D., PhD ............................... Virginia
Zhang, S., PhD ................................. Oregon

**Assistant Professors**

Bemiller, J., JD ................................. Tennessee
Fairbrother, J., PhD ............................. Florida State
Fisher, L.A., PhD ................................. California (Berkeley)
Fitzugh, E., PhD ................................. Alabama
Hartd, R.L., PhD ................................. Tennessee
Klein, D., PhD ................................. Arizona State
Koo, G., PhD ................................. Florida State
McCutchan, M.G., EdD .......................... North Carolina (Greensboro)
Milner, C.E., PhD ............................... Leeds (UK)
Waller, S.N., PhD ............................... Michigan State

**Faculty Associate**

Wirtz, M., MS ................................. Florida

**Internship Coordinator**

Brown, L.Y., MS ............................... Tennessee
The Department of Exercise, Sport, and Leisure Studies is committed to excellence in research, teaching, practice, and service within the multifaceted contexts of sport, leisure, and recreation. We are dedicated to providing superior and innovative programs of study and applied experiences that will enable students to become effective and imaginative professionals, scholars, and citizens. The department is also committed to the principles of diversity and social justice and to the provision of positive sport and leisure experiences for all people.

Graduate Assistantships
A limited number of graduate assistantships are available for qualified students who are graduates of accredited colleges or universities. These assistantships are open to students in the master's and doctoral programs. Students interested in these opportunities should file their applications before February. For information please contact Margy Wirtz, Department of Exercise, Sport & Leisure Studies, The University of Tennessee, 1914 Andy Holt Ave., 322 HPER Building, Knoxville, Tennessee 37996-2700, mwirtz@utk.edu or (865) 974-7154.

Admission
Applicants are required to complete the departmental application that is sent to all persons upon their initial inquiry about the program. This is in addition to the Graduate Application for Admission, submitted to the Office of Graduate and International Admissions. Applications from persons who have less than a 3.0 GPA will, in general, not be considered.

The following retention policy applies to all graduate students seeking a degree in the department.

- Graduate students are required to maintain an overall 3.0 GPA.
- Any student who falls below this standard will be advised in writing by the department head of the need to discuss the matter with his/her advisor.
- If a student's overall GPA remains below 3.0 for a second semester, the student will have his/her degree status revoked.

EXERCISE SCIENCE
Exercise Science is dedicated to promoting and integrating scientific research and education on the health benefits of exercise. Through a program of interdisciplinary graduate study, using both experimental and epidemiological methods, students gain a greater understanding of the role of exercise in the prevention of various cardiovascular, metabolic, and musculoskeletal disorders. The department offers two Master of Science concentrations and three doctoral specializations.

The biomechanics/sports medicine concentration (Master of Science) and specialization (doctoral) involves the study of biomechanical implications to exercise and rehabilitation. This program area focuses on the mechanism, prevention, and rehabilitation of musculoskeletal injuries. The emphases in courses taught in this area include biomechanical as well as medical considerations related to exercise and/or rehabilitation. The Doctor of Philosophy program requires coursework in engineering mechanics, numerical analysis, statistics, and advanced topics in biomechanics. Graduate students work with biomechanics/sports medicine faculty to pursue research in the areas of biomechanics of lower extremity function, footwear biomechanics, core stability, flexibility, and the biomechanics of injury mechanism and prevention.

The exercise physiology concentration (Master of Science) and specialization (doctoral) involves the study of the acute and chronic effects of exercise on the human body. At the master's level, students may choose from two tracks – adult fitness/cardiac rehabilitation, or applied physiology research. Students may elect to do internships in cardiac rehabilitation at several area hospitals, and are encouraged to take the ACSM Exercise Specialist exam upon graduation. The doctoral program requires coursework in the life sciences, physiological chemistry, statistics and advanced topics in exercise physiology. Graduate students collaborate with an exercise physiology faculty member to perform research in the areas of physical activity assessment, metabolism, the health benefits of exercise, and body composition.

The physical activity and population health specialization (doctoral) involves an in-depth examination of the impact of regular physical activity on a variety of health outcomes. Students who pursue this specialization will explore various aspects of these relationships including epidemiological and statistical methodologies, mechanisms of action, and issues related to promotion exercise adherence. Students will be expected to collaborate with faculty mentors on questions exploring the health and exercise relationship. Supporting coursework in other departments (e.g., sport studies, nursing, statistics) may be required.

MASTER OF SCIENCE EXERCISE SCIENCE MAJOR

BIOMECHANICS/SPORTS MEDICINE CONCENTRATION

Requirements
- Exercise Science 508, 513, 531, 533, 581 (3 hours), 601 (1 hour seminar, 2 enrollments) 635.
- Either Exercise Science 501 (project) or 500 (thesis – must also take a statistics course approved by advisor). Electives approved by advisor from Exercise Science, Sports Studies, or Biomedical Engineering.

EXERCISE PHYSIOLOGY CONCENTRATION

Requirements
- Exercise Science 508, 531, 533, 565, 567, 601 (1 hour seminar, 2 enrollments) 635. Either Exercise Science 501 (project) or 500 (thesis – must also take a statistics course approved by advisor). Electives approved by advisor from Exercise Science, Nursing, or Nutrition.
# DOCTOR OF PHILOSOPHY
## EDUCATION MAJOR
### EXERCISE SCIENCE CONCENTRATION
#### Requirements
- **15 hours in exercise science.**
- **9 hours in an exercise science specialization: biomechanics/sports medicine, exercise physiology, physical activity and population health, or other area approved by committee.**
- **Three registrations in Exercise Science 601.**
- **6 hours in a cognate selected from outside the student’s major field. The cognate must be related to and supportive of the concentration and specialization.**
- **15 hours in research methodologies or research experience.**
- **24 dissertation hours.**

**NOTE:** The above are viewed as minimum requirements and are subject to modification by the student’s committee.

## RECREATION AND LEISURE STUDIES
### MASTER OF SCIENCE
#### RECREATION AND LEISURE STUDIES MAJOR
##### Requirements
**Recreation and Leisure Administration Concentration (Thesis Option)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreation and Leisure Studies 415, 510, 515, 540, 541</td>
<td>15</td>
</tr>
<tr>
<td>Safety 443 or Sport Management 512</td>
<td>3</td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
<tr>
<td>Recreation and Leisure Studies 590 Graduate Internship</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
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</tbody>
</table>

**Recreation and Leisure Administration Concentration (Non-Thesis Option)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreation and Leisure Studies 415, 510, 515, 540, 541</td>
<td>15</td>
</tr>
<tr>
<td>Safety 443 or Sport Management 512</td>
<td>3</td>
</tr>
<tr>
<td>Sport Management 512</td>
<td>3</td>
</tr>
<tr>
<td>Recreation and Leisure Studies 590</td>
<td>6</td>
</tr>
<tr>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
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</table>

**Therapeutic Recreation Concentration (Thesis Option)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreation and Leisure Studies 510, 515, 520, 521, 522</td>
<td>15</td>
</tr>
<tr>
<td>*Recreation and Leisure Studies 590 (Internship)</td>
<td>6</td>
</tr>
<tr>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</tr>
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</table>

**Therapeutic Recreation Concentration (Non-Thesis Option)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreation and Leisure Studies 510, 515, 520, 521, 522</td>
<td>15</td>
</tr>
<tr>
<td>*Recreation and Leisure Studies 590 (Internship)</td>
<td>6</td>
</tr>
<tr>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

* Must meet national certification requirements

## SPORT STUDIES
### MASTER OF SCIENCE
#### SPORT STUDIES MAJOR
##### Graduate Assistantships
Graduate assistantships are available to qualified candidates. Students should contact directly the area in which they are pursuing an assistantship. A limited number of graduate teaching assistantships are available in the Physical Education and Activity Program for sport management students. Please contact Margy Wirtz at mwirtz@utk.edu or (865) 974-7154 for more information regarding these assistantships.

### SPORT MANAGEMENT CONCENTRATION
The sport management concentration provides the opportunity for students to have a quality academic experience and to gain professional experience as they prepare for careers in the sports industry.

##### Requirements
**Sport Management Concentration (Project Option)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sport Management 511, 532, 535</td>
<td>9</td>
</tr>
<tr>
<td>Sport Management Electives</td>
<td>6</td>
</tr>
<tr>
<td>Sport Studies Elective</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
</tr>
</tbody>
</table>

**Sport Management Concentration (Thesis Option)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sport Management 511, 532, 535</td>
<td>9</td>
</tr>
<tr>
<td>Sport Management Electives</td>
<td>6</td>
</tr>
<tr>
<td>Sport Studies Elective</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

1. Sport Management 440, 512, 530, 540, 544, 553, 554, 555, 570, 580.
2. These courses can be taken within Exercise, Sport, and Leisure Studies or outside the department.

A total of 6 hours may be earned in Sport Management 590 and 595 combined.

## DUAL MS-MBA
The College of Education, Health, and Human Sciences and the College of Business Administration offer an integrated program leading to the conferral of the Master of Science with a major in sport studies (concentration in sport management) and the Master of Business Administration.

Increasingly, sports and sports-related companies are represented by significant business enterprises. Success in these enterprises requires the application of business fundamentals, analytical techniques, and management skills within the specific context of the sports industry. The objective of the dual degree...
program is to train individuals in sport management and business management to integrate both sport and management and to prepare them to undertake leadership roles in this growing, dynamic, and competitive industry.

Admission

Applications are accepted for fall semester only. Applicants for the MS-MBA program must make separate application to, and be competitively and independently accepted by, Graduate and International Admissions for the Master of Business Administration degree program and the Master of Science with a major in sport studies.

Students will initially apply for the MBA program, indicating on their application the intent to pursue the dual MS-MBA program. Students accepted for both the MS and MBA programs will be assigned to Dual Program Committee advisors, who will be responsible for course approval and supervision of the dual students’ progress through the dual program.

Applications by U.S. citizens and permanent residents received after the application deadline (March 1) will be considered as space becomes available. Additional information is required and different application dates are established by Graduate and International Admissions for international students.

Requirements

The MBA curriculum consists of 31 hours of common coursework in the College of Business Administration. Dual degree candidates enrolled in sport management are required to take 30 hours of graduate level Sport Management courses and internship.

The dual degree candidate must satisfy the curriculum and graduation requirements of the sport management major and the College of Business Administration. Students withdrawing from the dual degree program before completing both degrees will not receive credit toward graduation in either degree program for courses taken in the other degree program, except as such courses qualify for credit without regard to the dual degree program.

The MBA and MS will be awarded upon successful completion of the requirements of the dual program.

**Sport Management Concentration (MS-MBA)**

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>August – First Year</td>
<td>Business Administration 511</td>
<td>MBA Core I</td>
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<tr>
<td>Fall – First Year</td>
<td>Business Administration 501</td>
<td>MBA Career Development</td>
<td>1</td>
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<tr>
<td></td>
<td>Business Administration 512</td>
<td>MBA Core II</td>
<td>15</td>
</tr>
<tr>
<td>Spring</td>
<td>Business Administration 513</td>
<td>MBA Core III</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>MBA Elective</td>
<td>Recommend: Marketing 520</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Sport Management 554</td>
<td>Readings in Sport Management</td>
<td>3</td>
</tr>
<tr>
<td>Summer</td>
<td>Sport Management 595</td>
<td>Sport Management Internship</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Sport Management 501</td>
<td>Sport Management Special Projects</td>
<td>3</td>
</tr>
<tr>
<td>Fall – Second Year</td>
<td>Sport Management 544</td>
<td>Leadership Theories in Sport</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Sport Management 511</td>
<td>Administration and Supervision in Sport</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Sport Management 532</td>
<td>Research Techniques in Sport</td>
<td>3</td>
</tr>
<tr>
<td>Spring – Second Year</td>
<td>Sport Management 530</td>
<td>Sport and Media Issues</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Sport Management 512</td>
<td>Legal Concepts in Sport</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Sport Management 535</td>
<td>Social and Ethical Issues in Sport</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td><strong>61</strong></td>
</tr>
</tbody>
</table>

**SPORTS STUDIES CONCENTRATION**

**Requirements**

**Thesis and Non-Thesis Options**

Most students in sport psychology choose the non-thesis option. Students who choose the non-thesis option are required to take a written comprehensive examination. The thesis option is available only upon consultation with and approval of the student’s advisor. Thesis students sign up for 6 hours of thesis. Sport sociology master’s students may elect the thesis or non-thesis option.

All students must complete a minimum of 30 semester hours. Students must select a minimum of 15 hours from the following Sport Studies courses 505, 507, 514, 533, 534, 535, 542, 543, 593 (1-3), 594 (1-3), 595 (1-3), 601 (1-3), 633. Students may select additional course relevant to their professional and career goals from other departments.

*These courses may be repeated.

**DOCTOR OF PHILOSOPHY**

**EDUCATION MAJOR**

**SPORT STUDIES CONCENTRATION**

The PhD with a major in education offers a concentration in sport studies with areas of specialization in sport sociology and sport psychology. The program stresses an interdisciplinary approach to coursework and research and expects its students to become proficient in qualitative and quantitative research methods. Students are expected to obtain a significant grounding in the allied, parent disciplines. The program prepares students to teach in higher education and/or to conduct work within applied educational and sport settings. Students must have completed all requirements for a master's degree in kinesiology, physical education, psychology, sociology, sport studies or a related field prior to beginning the doctoral program. The program usually takes 3 years (2 years of coursework and 1 year for the dissertation).

**Requirements**

The program usually takes 3 years (2 years of coursework and 1 year for the dissertation) and includes the following.

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration</td>
</tr>
<tr>
<td>Research (3 hours of Sports Studies 601 included)</td>
</tr>
<tr>
<td>Specialization</td>
</tr>
<tr>
<td>Cognate</td>
</tr>
<tr>
<td>Dissertation</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF INSTRUCTIONAL TECHNOLOGY, HEALTH, AND EDUCATIONAL STUDIES**

http://ites.tennessee.edu/

Barbara Thayer-Bacon, Interim Head

**Professors**

Counts, E., EdD ............................................. Texas A&M
Gorski, J., DrPH ........................................ UCLA
Hamilton, C., DrPH ........................................ Oklahoma
Petty, G., PhD ............................................... Missouri
Thayer-Bacon, B., PhD ..................................... Indiana
Waugh, M., EdD .............................................. Georgia

**Associate Professors**

Connelly, M., EdD ........................................... Virginia Tech
O’Bannon, B., EdD .......................................... Memphis
Pursley, R., PhD ........................................... Iowa
Smith, S., EdD .............................................. Tennessee
Wright, H., PhD ............................................ Toronto (Canada)
**Department-Specific Admissions Criteria**

Each PhD applicant in the Department of Instructional Technology, Health, and Educational Studies is required to submit a current set of GRE scores as part of his/her application. However, the department does not require MS or EdS applicants to submit GRE scores.

**GERONTOLOGY**

**Intercollegiate/Interdisciplinary Gerontology Minor**

An intercollegiate/interdisciplinary minor in gerontology gives the graduate student an opportunity for combining the knowledge and experience about aging in American society with his/her own major concentration. Core courses and a practicum are offered by the College of Nursing, College of Social Work and selected departments within the College of Education, Health, and Human Sciences. A cross-listed seminar among contributing program areas is designed to integrate experiences from different sources and to demonstrate the interdisciplinary nature of working within an aging society.

**Requirements**

Prior to earning more than one-half the total hours required for this minor, students must complete a Declaration of a Gerontology Minor form found in the advising offices in each of the participating colleges, and in the office of the current Gerontology Coordinator identified by the interdisciplinary Gerontology Colloquy.

**Core Experience**

Students must complete a core experience of 12 semester hours. This requires one 3-hour course in each of the primary disciplines (health science, social science, behavioral science) as identified on the Declaration of a Gerontology Minor form.

**Coursework (9 hours).** A variety of coursework may be taken toward satisfaction of this requirement. Courses which are offered include Health 406, 465; Health/Public Health 650; Nutrition 518; Public Health 523; Social Work 566; Educational Psychology 504, 522, 525, 528; and other courses approved by the interdisciplinary gerontology colloquy member coordinating the minor.

**Applied Practicum (2 hours).** Students should register under practicum experiences in the home department of the supervising faculty.

**Seminar in Gerontology (1 hour).** Cross-listed with participating departments.

**Graduate Committee**

At least one faculty member from the interdisciplinary Gerontology Colloquy who is qualified to work with graduate students, must serve on the graduate committee of each student who declares a gerontology minor.

**Admission to Candidacy**

When application is made for admission to candidacy, indication of the minor must be noted on the Admission to Candidacy form.

**GRADUATE CERTIFICATE IN GERONTOLOGY**

The graduate certificate in gerontology is intended for pre- and in-service workers in gerontology. The program of study follows the guidelines of the Association of Gerontology in Higher Education and is offered under the purview of the University's Gerontology Colloquy.
Requirements

Nine (9) hours covering the focus areas of the interdisciplinary field of gerontology:

1 Physical ................................................................. 3
Social – Social Work 566 .............................................. 3
Behavioral – Educational Psychology 523 ..................... 3
Internship or practicum .................................................. 6
Electives ................................................................ 6

1 Select one from Health/Public Health 650; Nutrition 518.
2 At least 6 hours from Educational Psychology 504; Exercise Science/Public Health 635; Health 406, 570, Health 585 (cross-listed with several disciplines; may be repeated, 3 hours maximum); Public Health 523; Nursing 400; Social Work 540; other courses as approved by the interdisciplinary gerontology colloquy member coordinating the gerontology minor and the certificate program.

HEALTH

DOCTOR OF PHILOSOPHY
HUMAN ECOLOGY MAJOR

COMMUNITY HEALTH CONCENTRATION

The community health concentration integrates the behavioral and natural sciences with public health, community health education, health promotion and the safety sciences to prepare scholars with an interest in improving the health of the nation.

Requirements

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research and Foundations ........................................</td>
<td>15</td>
</tr>
<tr>
<td>Community Health Specialization ................................</td>
<td>27</td>
</tr>
<tr>
<td>Supporting Specialization (Public Health, Safety, or Gerontology)</td>
<td>12</td>
</tr>
<tr>
<td>Cognate ..................................................................</td>
<td>6</td>
</tr>
<tr>
<td>Dissertation (Health 600) .........................................</td>
<td>24</td>
</tr>
<tr>
<td>Total 39</td>
<td></td>
</tr>
</tbody>
</table>

1 Instructional Technology and Educational Studies 601; Health 590; Statistics 531, 532 or a two-course 500-level statistics sequence approved by doctoral chair. Three hours of natural or behavioral sciences approved by doctoral chair.
2 Health 610, 620, 530, 540, 655, 660, and Public Health 550 (required) and 6 additional hours of graduate health electives. A list of recommended health electives for the community health doctoral program is available in the program office.
3 A block of 12 hours must be taken from one of the following areas: public health, safety/emergency management, or gerontology.
4 Courses must be approved by cognate professor outside the department.

NOTE: To meet program requirements, students must select courses in consultation with a program advisor. Program totals are minimums and some students may be required to complete additional coursework to overcome background deficiencies or to increase skill in an area of identified specialization.

PUBLIC HEALTH

Graduate study with a major in public health leads to the Master of Public Health (MPH). Four professional preparation concentrations are available – community health education, gerontology, health planning/administration, and veterinary public health. The veterinary public health concentration is open to graduates veterinarians or students enrolled in the College of Veterinary Medicine. Preparation for professional practice in improving community health emphasizes a population perspective, service-learning and application opportunities through rigorous internships. The MPH program is accredited by the Council on Education for Public Health. A minor in statistics is available to interested MPH students due to public health affiliation with the Intercollegiate Graduate Statistics Program.

Non-degree students must obtain permission from the MPH program director to register for 500-level public health courses.

Prerequisite coursework assigned as a condition of admission to the MPH program must be completed promptly, with a grade of B or better, typically within the first semester or two of enrollment in graduate studies.

Admission

A statement of the applicant’s educational and career goals and three rating forms are required. Request application packet from the department. Preferential consideration for admission to degree status shall be given to those with a minimum undergraduate grade point average of 2.8 and with at least one year of professional experience in a health-related occupation. As a restricted program, non-degree admission requires department recommendation. Deadlines for completed applications are 1 February for summer term, 1 April for fall semester, and 1 October for spring semester.

MASTER OF PUBLIC HEALTH

PUBLIC HEALTH MAJOR

The MPH is a non-thesis program requiring completion of 39 hours of coursework including nine weeks of field practice. The field internship provides a full-time experience with an affiliated health agency or organization offering one or more health programs. Of importance, field practice allows the student to apply academic theories, concepts, and skills in an actual work setting.

Requirements

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Health Foundation . .....................................</td>
<td>17</td>
</tr>
<tr>
<td>Concentration .......................................................</td>
<td>10</td>
</tr>
<tr>
<td>Electives ................................................................</td>
<td>6</td>
</tr>
<tr>
<td>Internship ................................................................</td>
<td>6</td>
</tr>
<tr>
<td>Total 39</td>
<td></td>
</tr>
</tbody>
</table>

1 Public Health Foundation courses – Public Health 509 (2 hours) 510, 520, 530, 540, 555.
3 Listings of electives for each concentration are available in MPH program office.
4 Public Health 587, 588 (field practice with an affiliated health agency or completion of a master’s essay). Written guidelines stipulating eligibility criteria and expectations are available.

NOTE: To meet program requirements, students must select courses in consultation with an assigned program advisor. Program totals are minimums and some students may be required to complete additional coursework to overcome background deficiencies.

DUAL MS-MPH PROGRAM

Also offered is a coordinated dual program leading to the conferral of both the Master of Science with a major in nutrition (public health nutrition concentration) and the Master of Public Health. The dual program allows students to complete both degrees in less time than would be required to earn both degrees independently.

The program is designed to meet the needs of students who are interested in the benefits of majors in both nutrition and public health. Therefore, it accommodates the interests of students who plan a career in public health nutrition and want to acquire the knowledge and skills of the nutritionist and public health professional; plan a career in nutrition and want to acquire the knowledge and skills of the nutritionist and public health professional; or plan a career in public health and want to acquire the knowledge, skills and perspective of the nutritionist.
GRADUATE CERTIFICATE IN PUBLIC HEALTH LEADERSHIP

The University of Tennessee MPH program, in a Consortium arrangement with East Tennessee State University, the University of Tennessee Health Science Center, and The Tennessee Department of Health, offers a graduate certificate in public health leadership for Health Department staff seeking continuing education and career advancement opportunities in the public health practice arena. Delivered exclusively through electronically mediated courses, the program is focused on leadership principles and skills as applied in public health and community settings.

The 15-hour certificate is available by completing Public Health 520, 522, 525, 540 and an elective, which may be satisfied by taking equivalent courses offered by East Tennessee State University and the University of Tennessee Health Science Center. For those holding the MPH, other identified elective coursework may be used to satisfy certificate requirements, by petition.

INSTRUCTIONAL TECHNOLOGY AND EDUCATIONAL STUDIES

MASTER OF SCIENCE INSTRUCTIONAL TECHNOLOGY AND EDUCATIONAL STUDIES MAJOR

Requirements

**Cultural Studies of Educational Foundations Concentration**

<table>
<thead>
<tr>
<th>Cultural Studies of Educational Foundations Concentration</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Concentration</td>
<td>.14</td>
</tr>
<tr>
<td>2 Specialization (choose one)</td>
<td>.9</td>
</tr>
<tr>
<td>3 Research</td>
<td>.6</td>
</tr>
<tr>
<td>4 Thesis or Problems in Lieu of Thesis</td>
<td>.6</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
</tr>
</tbody>
</table>

1 Cultural Studies in Education 590 (2), 591, 592. Select two from Cultural Studies in Education 511, 539, 544, 545, 549, or 550.
2 Select three courses in one of the following areas – Philosophy of Education (Cultural Studies in Education 526, 539, 544, 548, 608, or 609); Sociology of Education (Cultural Studies in Education 545, 549); History of Education (Cultural Studies in Education 511, 539, 546, 609, or 625).
3 Select two courses from Cultural Studies in Education 526, 560, 561, 625, or 660.
4 Instructional Technology and Educational Studies 500 or Instructional Technology and Educational Studies 503.

**NOTE:** To meet program requirements, students must select courses in consultation with a program advisor. Program totals are minimums and some students may be required to complete additional coursework to overcome background deficiencies.

**Curriculum Concentration (Thesis Option)**

<table>
<thead>
<tr>
<th>Curriculum Concentration (Thesis Option)</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Core</td>
<td>.9</td>
</tr>
<tr>
<td>2 Concentration (thesis option)</td>
<td>.9</td>
</tr>
<tr>
<td>3 Research</td>
<td>.6</td>
</tr>
<tr>
<td>Instructional Technology and Educational Studies 500 (Thesis)</td>
<td>.3</td>
</tr>
<tr>
<td>Total Thesis</td>
<td>30</td>
</tr>
</tbody>
</table>

1 Theory and Practice in Teacher Education 517.
2 Select one course in each of the following areas – Educational Foundations, Instructional Technology, Curriculum, Educational Research and Evaluation 534 or 558, 560, 588.
3 Curriculum, Educational Research and Evaluation 520.

**NOTE:** To meet program requirements, students must select courses in consultation with a program advisor. Program totals are minimums and some students may be required to complete additional coursework to overcome background deficiencies.
Curriculum Concentration (Non-Thesis Option)  

| Hours Credit | 1 Core | 2 Concentration | Electives | 3 Research | 3 Required for students who do not have a master's degree with a major in each of the following areas – Cultural Studies in Education 607; Instructional Technology and Educational Studies 601 (3). Select one course in each of the following areas – Cultural Studies in Education 625, 639, 644, 648, or 658; Sociology of Education (Cultural Studies in Education 545, 549); History of Education (Cultural Studies in Education 511, 512, 539, 609, or 625). Both qualitative and quantitative research methodologies must be included. Curriculum, Educational Research and Evaluation 520; Research Methods Electives (12). NOTE: To meet program requirements, students must select all courses in consultation with a program advisor. Program totals are minimums and some students may be required to complete additional coursework to overcome background deficiencies. |

| 3 Select 9 hours from Curriculum, Educational Research, and Evaluation subject area. Select 3 hours from either Instructional Technology or Cultural Studies in Education subject areas. Select 6 hours electives outside the curriculum concentration. |

Curriculum, Educational Research, and Evaluation Concentration

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Program Prerequisites</td>
<td>.12</td>
</tr>
<tr>
<td>2 Departmental Core</td>
<td>.15</td>
</tr>
<tr>
<td>3 Concentration Specialization</td>
<td>.9</td>
</tr>
<tr>
<td>4 Research</td>
<td>.15</td>
</tr>
<tr>
<td>Cognate</td>
<td>.6</td>
</tr>
<tr>
<td>Dissertation (Instructional Technology and Educational Studies 600)</td>
<td>.24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>81</strong></td>
</tr>
</tbody>
</table>

1. Dependent on student background.
2. Instructional Technology and Educational Studies 601 (3). Select one course in each of the following areas — Cultural Studies in Education 550, 592, or 607; Instructional Technology 521 or 679, or advisor-approved substitute; Curriculum, Educational Research and Evaluation 676.
4. Both qualitative and quantitative research methodologies must be included. Curriculum, Educational Research and Evaluation 520; Research Methods Electives (12).

NOTE: To meet program requirements, students must select courses in consultation with a program advisor. Program totals are minimums and some students may be required to complete additional coursework to overcome background deficiencies.

Instructional Technology Concentration

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Program Prerequisites</td>
<td>.12</td>
</tr>
<tr>
<td>2 Departmental Core</td>
<td>.15</td>
</tr>
<tr>
<td>3 Concentration Specialization</td>
<td>.9</td>
</tr>
<tr>
<td>4 Research</td>
<td>.15</td>
</tr>
<tr>
<td>Cognate</td>
<td>.6</td>
</tr>
<tr>
<td>Dissertation (Instructional Technology and Educational Studies 600)</td>
<td>.24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>81</strong></td>
</tr>
</tbody>
</table>

1. Students entering the PhD program with a concentration in Instructional Technology must possess a Master’s degree in Instructional Technology or a closely related field; or complete Instructional Technology courses 521, 570, 573, 575; or show evidence of comparable coursework or work experience.
2. Instructional Technology and Educational Studies 601 (3). Select one course in each of the following areas — Cultural Studies in Education 550, 592, or 607; Instructional Technology 679; Curriculum, Educational Research and Evaluation 534, 558, 675, or 676.
3. Instructional Technology 678; other Instructional Technology electives (12).
4. Both qualitative and quantitative research methodologies must be included. Curriculum, Educational Research and Evaluation 520; Research Methods Electives (12).

NOTE: To meet program requirements, students must select courses in consultation with a program advisor. Program totals are minimums and some students may be required to complete additional coursework to overcome background deficiencies.

SAFETY

MASTER OF SCIENCE

SAFETY MAJOR

Graduate study with a major in safety (thesis and non-thesis options) leads to the Master of Science. Graduate students may concentrate in emergency management or in safety management.

The graduate program contributes to the University of Tennessee, Knoxville’s, mission of health protection by preparing safety professionals with the knowledge and skills necessary to create and maintain safer human environments in the workplace (industrial and commercial), home, school, and community. The offering of all core classes and required concentration courses on an evening class schedule enables those working full-time in a safety-related field to pursue the MS with a major in safety on a part-time basis.

Requirements

Emergency Management Concentration (Thesis Option)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Core</td>
<td>.18</td>
</tr>
<tr>
<td>2 Required Concentration Courses</td>
<td>.9</td>
</tr>
<tr>
<td>Thesis (Safety 500)</td>
<td>.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
</tr>
</tbody>
</table>

1. Safety 532, 533, 534, 535, 592 and a 500-level graduate statistics course.

NOTE: To meet program requirements, students must select courses in consultation with a program advisor. Program totals are minimums and some students may be required to complete additional coursework depending upon academic background.

Emergency Management Concentration (Non-Thesis Option)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Core</td>
<td>.18</td>
</tr>
<tr>
<td>2 Required Concentration Courses</td>
<td>.12</td>
</tr>
<tr>
<td>3 Concentration Electives</td>
<td>.3</td>
</tr>
<tr>
<td>Culminating Experience</td>
<td>.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
</tr>
</tbody>
</table>

1. Safety 452, 532, 533, 534, 535, and 592.
2. Safety 560, 537, Public Administration 562, and Safety 601 or 593.
3. A list of recommended safety electives for each concentration is available in the program office.
4. Non-thesis safety students are also required to complete a culminating experience and a written comprehensive exam prior to graduation. A list of options to achieve completion of the culminating experience is available in the safety program office.

NOTE: To meet program requirements, students must select courses in consultation with a program advisor. Program totals are minimums and some students may be required to complete additional coursework depending upon academic background.

Safety Management Concentration (Thesis Option)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Core</td>
<td>.18</td>
</tr>
<tr>
<td>2 Required Concentration Courses</td>
<td>.9</td>
</tr>
<tr>
<td>3 Concentration Elective Select</td>
<td>.3</td>
</tr>
<tr>
<td>Thesis (Safety 500)</td>
<td>.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
</tr>
</tbody>
</table>

1. Safety 532, 533, 534, 535, 592, and a 500-level graduate statistics course.
2. Safety 536, 564.

A list of recommended safety electives for each concentration is available in the program office.

NOTE: To meet program requirements, students must select courses in consultation with a program advisor. Program totals are minimums and some students may be required to complete additional coursework to overcome background deficiencies.

Safety Management Concentration (Non-Thesis Option)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Core</td>
<td>.18</td>
</tr>
<tr>
<td>2 Required Concentration Courses</td>
<td>.6</td>
</tr>
<tr>
<td>3 Concentration Electives</td>
<td>.9</td>
</tr>
<tr>
<td>Culminating Experience</td>
<td>.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
</tr>
</tbody>
</table>

1. Safety 452, 532, 533, 534, 535, and 592.
2. Safety 536, 564.

A list of recommended electives for each safety concentration is available in the program office. Elective hours may include a 3-hour internship or a 3-hour research project, if approved by advisor.

4. Non-thesis safety students are also required to complete a culminating experience, as well as a written comprehensive exam, prior to graduation. A list of options to achieve completion of the culminating experience is available in the safety program office.
NOTE: To meet program requirements, students must select courses in consultation with a program advisor. Program totals are minimums and some students may be required to complete additional coursework depending on academic background.

DEPARTMENT OF NUTRITION

http://nutrition.utk.edu
Jay Whelan, Head
Michael Zemel, Graduate Liaison

Professors
Haughton, B., EdD  ........................................ Columbia
Karlstad, M., PhD  ........................................ Loyola
Moussa, N., PhD  ........................................ Paris
Whelan, J., PhD  ........................................ Penn State
Zemel, M., PhD  ........................................ Wisconsin

Associate Professors
Bailey, J., PhD  ........................................ Illinois State
Burney, J., PhD  ........................................ Tennessee
Greer, B., PhD  ........................................ Tennessee

Assistant Professors
Bittle, J., PhD  ........................................ Tennessee
Hansen-Petrik, M., PhD  ................................ Tennessee
Jahns, L., PhD  ........................................ North Carolina
Kim, J., PhD  ........................................ Tennessee
Truett, G., PhD  ........................................ Georgia

Lecturer
Wetherall, K., MS  ........................................ Boston

Emeritus Faculty
Sachan, D., PhD  ........................................ Illinois
Skinner, J., PhD  ........................................ Oregon State

MAJORS DEGREES

Nutrition
Nutrition science concentration
Public health nutrition concentration

Nutrition MS

Nutrition science concentration

Nutrition MS-MPH

Human Ecology PhD

Nutrition science concentration

The Master of Science program is available with a major in nutrition and concentrations in nutrition science or public health nutrition.

A graduate degree combined with a Dietetic Internship (DI) beyond the baccalaureate degree qualifies the graduate to apply for the Registration Examination to become a Registered Dietitian (RD). Students may learn more from the department about the DI program from the departmental Web site. The Dietetic Internship is currently granted accreditation by the Commission on Accreditation for Dietetic Education of The American Dietetic Association, 120 South Riverside Plaza, Chicago, Illinois 60606-6995; telephone (312) 899-0040. Students may also select an interdisciplinary minor in gerontology.

Admission

A complete file for review includes the Graduate Application for Admission file, completed departmental application form, Graduate Record Examination (GRE) scores for the general section, and three Graduate Rating Forms completed by individuals who can attest to the applicant’s potential for graduate education. Forms may be obtained from the departmental office at 229 Jessie Harris Building, The University of Tennessee, Knoxville, 37996-1920. Forms may also be obtained from the department’s Web site.

Admission into the graduate program in the department is dependent on completion of undergraduate courses that give the necessary background for success in the graduate program. Required undergraduate courses include: general and organic chemistry, physiological chemistry/biochemistry, physiology, statistics and advanced nutrition. Admission to the PhD program with a major in human ecology and a concentration in nutrition science requires a master’s degree. Applicants to all programs with related experience may be given preference.

MASTER OF SCIENCE NUTRITION MAJOR

Requirements

Students may choose a thesis or non-thesis option in nutrition. Attendance of Nutrition 540 is required every semester.

Thesis Option

The program consists of a minimum of 33 hours with at least 16 hours of coursework in the department.

• Nutrition 511, 512, 540, 541 and 3 hours of graduate level statistics are required of nutrition science students.

• Students in public health nutrition must take 511, 512, 513, 514, 515, 541 and the minor in public health.

• 6 hours of Thesis 500, and 6 hours outside the department are required.

• A minimum of 22 hours at the 500 or 600 level is required.

• An oral comprehensive examination is required upon completion of the thesis.

Non-Thesis Option

The program consists of a minimum of 36 hours with at least 20 hours of coursework in the department.

• Nutrition 511, 512, 540, 541, 2 hours from 542, 544 and 3 hours of graduate level statistics are required of nutrition science students.

• Students in public health nutrition must take 511, 512, 513, 514, 515 and the minor in public health.

• 6 hours in one area outside the department are required.

• A minimum of 24 hours at the 500 and 600 level is required.

• A written comprehensive examination is required for completion of the program.

DUAL MS-MPH PROGRAM

The College of Education, Health, and Human Sciences offers a coordinated dual program leading to the conferral of both the Master of Science with a major in nutrition (public health nutrition concentration) and the Master of Public Health. The dual program allows students to complete both degrees in less time than would be required to earn both degrees independently.

The program is designed to meet the needs of students who are interested in the benefits of majors in both nutrition and public health. Therefore, it accommodates the interests of students who

• Plan a career in public health nutrition and want to acquire the knowledge and skills of the nutritionist and public health professional.

• Plan a career in nutrition and want to acquire the knowledge, skills and perspective of the public health professional.

• Plan a career in public health and want to acquire the knowledge, skills and perspective of the nutritionist.

Admission

Applicants for the MS-MPH program must make separate application to, and be competitively and independently accepted by, the Department of Nutrition for the Master of Science degree and the Department of Instructional Technology, Health, and Educational Studies for the Master of Public Health degree.

Students who have been accepted by both departments may apply for approval to pursue the dual program anytime prior to, or after, matriculation in either or both departments. Such approval will be granted provided that dual program studies are started prior to entry into the fourth semester of the MS and MPH programs.
Requirements

A dual degree candidate must satisfy the requirements for both the Master of Science degree (public health nutrition concentration) and the Master of Public Health degree, as well as the requirements for the dual program. All candidates for the dual degree must successfully complete Health and Society (Public Health 556); 2 hours of Seminar in Public Health (1 hour each – Public Health 509 and Nutrition 509); and a minimum of 60 hours. The Department of Nutrition will award a maximum of 9 hours of credit toward the Master of Science degree for successful completion of approved graduate-level courses offered by the Department of Instructional Technology, Health, and Educational Studies.

The Department of Instructional Technology, Health, and Educational Studies will award a maximum of 11 hours of credit toward the MPH for successful completion of approved courses offered in the Department of Nutrition.

All courses for which such cross-credit is awarded must be approved by the Public Health Academic Program Committee and the student’s graduate committee. A single block field experience (or public health internship) is required of all students and the analytical field paper incorporates public health nutrition and the student’s public health concentration.

Dual degree students who withdraw from the program before completion of the requirements for both degrees will not receive credit towards the MS or MPH for courses taken in the other program except as such courses qualify for credit without regard to the dual program.

Approved Dual Credit

MS courses to be counted toward the MPH program must include 10 hours of Field Study in Community Nutrition (Nutrition 515) and 1 hour of Graduate Seminar in Public Health (Nutrition 509). MPH courses to be counted toward the MS include public health administration (Public Health 520), biostatistics (Public Health 530), and epidemiology (Public Health 540).

DOCTOR OF PHILOSOPHY

HUMAN ECOLOGY MAJOR

NUTRITION SCIENCE CONCENTRATION

The PhD enables students to study the science of nutrition from the cellular/molecular level to the application of nutrition principles by people in a changing environment.

The doctoral program emphasizes cellular/molecular nutrition, human nutrition, nutritional epidemiology, and experimental nutrition. Cognate areas may include anthropology, biochemistry, chemistry, communications, education, food technology, human development, physiology, public health, sociology, statistics, and/or toxicology.

Requirements

- 16 hours in nutrition including 4 hours at the 600 level (exclusive of dissertation).
- Nutrition 511, 512, 541, and 2 hours from either 542-544.
- 4 hours of Nutrition 540, attendance required every semester.
- 6 hours of statistics.
- 6 hours in a cognate area.
- 9 hours at the 600 level.
- Students without college teaching experience are required to take the fall semester teaching seminar for GTAs.

Nutrition Minor

The graduate minor consists of Nutrition 511 and 512 plus at least 3 hours from any letter-graded 500-level or above nutrition courses.

DEPARTMENT OF RETAIL, HOSPITALITY, AND TOURISM MANAGEMENT

http://csm.utk.edu
Nancy B. Fair, Head
Laura Jolly, RCS Graduate Liaison
Rachel Chen, HRT Graduate Liaison

Professors
Costello, C., PhD ........................................ Tennessee
Fair, N., PhD ........................................ North Carolina State
Fairhurst, A., PhD ........................................ Oklahoma State
Jolly, L., PhD ........................................ Oklahoma State
Kim, Y., PhD ........................................ North Carolina

Associate Professors
Chen, R., PhD ........................................ North Carolina State
Morse, Steve, PhD ........................................ Tennessee
Wise, D., PhD ........................................ Texas A&M

Assistant Professors
Antun, J., PhD ........................................ South Carolina
Costen, W., PhD ........................................ Washington State
Lim, H., PhD ........................................ Purdue

Internship Coordinators
Aaser, D., MS ........................................ Wisconsin (Stout)
Simpson, L., MS ........................................ Tennessee

Executive-in-Residence
Piper, C., BA ........................................ Maryville College

MAJORS

DEGREES

Consumer Services Management
MS
- Hospitality and tourism management concentration
- Retail and consumer sciences concentration

Human Ecology
PhD
- Hospitality and tourism management concentration
- Retail and consumer sciences concentration

Graduate Certificate Programs
- Services management
- Tourism development

The Department of Retail, Hospitality, and Tourism Management offers the master’s degree with a major in consumer services management and concentrations in hospitality and tourism management and retail and consumer sciences.

The programs in consumer services management prepare students for careers in industry and business, public and private agencies, and educational institutions. Master’s level work develops students’ technical skills in retail management, merchandising, hospitality management, tourism, and related consumer services. The advanced work undertaken for the doctoral degree focuses on building and applying research skills to advance the fields of retail and consumer sciences and hospitality and tourism.

Interested students should contact the department for more information or visit the department link on the college Web site.

Admission

A complete file for review includes the Graduate Application for Admission file, Department of Retail, Hospitality, and Tourism Management application, Graduate Record Examination (GRE) scores for the general section, and three Graduate Rating Forms completed by individuals who can attest to the potential for graduate education.

In addition to specified entrance requirements stipulated by the Graduate Council, admission to the master’s program with a major in consumer services management is dependent on completion of undergraduate courses that give the necessary background for success in the graduate program. For the concentration in hospitality and tourism management, students should have an adequate background in hotel and/or restaurant management and/or tourism management supported by coursework in food production, cost control, or lodging management. For the concen-
tation in retail and consumer sciences, students should have an adequate background in retailing and/or consumer science supported by coursework in marketing and statistics.

Superior students deficient in one or more of the above requirements may be admitted at the discretion of the department’s graduate faculty. Deficiencies may need to be addressed through undergraduate coursework.

**Academic Standards**

Evaluation of student progress will normally occur prior to enrollment for thesis hours (or the non-thesis option) and during the second semester of full-time enrollment in the program. The review of the student will be undertaken by the faculty with consideration given to factors such as – GPA (minimum 3.0), portfolio evaluation, and demonstrated research capability.

If progress or performance is deemed insufficient, the faculty may recommend probation with specific goals set for a specified time or termination.

**MASTER OF SCIENCE**

**CONSUMER SERVICES MANAGEMENT**

**MAJOR**

**Requirements**

The requirements for the major in consumer services management are listed below by concentration.

**Hospitality and Tourism Management Concentration (Thesis)**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Services Management</td>
</tr>
<tr>
<td>2Tourism</td>
</tr>
<tr>
<td>3Research Methods</td>
</tr>
<tr>
<td>Statistical Methods</td>
</tr>
<tr>
<td>Cognate Area</td>
</tr>
<tr>
<td>Hotel, Restaurant, and Tourism 547</td>
</tr>
<tr>
<td>Thesis</td>
</tr>
<tr>
<td><strong>Total 39</strong></td>
</tr>
</tbody>
</table>

1 Retail and Consumer Sciences 538, 541; Hotel, Restaurant, and Tourism 510, 532.
2 Select either Hotel, Restaurant, and Tourism 523 or 524.
3 Retail and Consumer Sciences 562.

**Hospitality and Tourism Management Concentration (Non-Thesis)**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Services Management</td>
</tr>
<tr>
<td>2Tourism</td>
</tr>
<tr>
<td>3Research Methods</td>
</tr>
<tr>
<td>Statistical Methods</td>
</tr>
<tr>
<td>Cognate Area</td>
</tr>
<tr>
<td>Hotel, Restaurant, and Tourism 547</td>
</tr>
<tr>
<td>4Professional Paper/Project</td>
</tr>
<tr>
<td><strong>Total 36</strong></td>
</tr>
</tbody>
</table>

1 Retail and Consumer Sciences 538, 541; Hotel, Restaurant, and Tourism 510, 532.
2 Hotel, Restaurant, and Tourism 614, 615, 547, 523, 524.
3 Retail and Consumer Sciences 562.
4 Retail and Consumer Sciences 501.

**Retail and Consumer Sciences Concentration (Thesis)**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Services Management</td>
</tr>
<tr>
<td>2Research Methods</td>
</tr>
<tr>
<td>Statistical Methods</td>
</tr>
<tr>
<td>Cognate Area</td>
</tr>
<tr>
<td>Retail and Consumer Sciences Elective</td>
</tr>
<tr>
<td>Thesis</td>
</tr>
<tr>
<td><strong>Total 36</strong></td>
</tr>
</tbody>
</table>

1 Retail and Consumer Sciences 538, 541; Hotel, Restaurant, and Tourism 510, 532.
2 Retail and Consumer Sciences 562.

**Retail and Consumer Sciences Concentration (Non-Thesis)**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Services Management</td>
</tr>
<tr>
<td>2Research Methods</td>
</tr>
<tr>
<td>Statistical Methods</td>
</tr>
<tr>
<td>Cognate Area</td>
</tr>
<tr>
<td>Retail and Consumer Sciences Elective</td>
</tr>
<tr>
<td><strong>Total 36</strong></td>
</tr>
</tbody>
</table>

1 Retail and Consumer Sciences 538, 541; Hotel, Restaurant, and Tourism 510, 532.
2 Retail and Consumer Sciences 562.
3 Retail and Consumer Sciences 501.

**DOCTOR OF PHILOSOPHY**

**HUMAN ECOLOGY MAJOR**

**Requirements**

The requirements for the doctoral degree are listed below by concentration.

**Hospitality and Tourism Management Concentration**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Required Courses</td>
</tr>
<tr>
<td>2Research Methods</td>
</tr>
<tr>
<td>3Statistics</td>
</tr>
<tr>
<td>4Cognate Area</td>
</tr>
<tr>
<td>5Instructional Methods</td>
</tr>
<tr>
<td>Electives</td>
</tr>
<tr>
<td>Dissertation</td>
</tr>
<tr>
<td><strong>Total 86</strong></td>
</tr>
</tbody>
</table>

1 Hotel, Restaurant, and Tourism 614, 615, 547, 523, 524.
2 Hotel, Restaurant, and Tourism 537, Retail and Consumer Sciences 616.
3 Statistics 537, 538, 579.
4 Cognate hours must include at least 3 hours at the 600 level.
5 Graduate-level courses that will help develop students' instructional capabilities.

**Retail and Consumer Sciences Concentration**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Required Courses</td>
</tr>
<tr>
<td>2Research Methods</td>
</tr>
<tr>
<td>3Statistics</td>
</tr>
<tr>
<td>4Cognate Area</td>
</tr>
<tr>
<td>5Instructional Methods</td>
</tr>
<tr>
<td>Electives</td>
</tr>
<tr>
<td>Dissertation</td>
</tr>
<tr>
<td><strong>Total 86</strong></td>
</tr>
</tbody>
</table>

1 Retail and Consumer Sciences 614, 615, 625, 641.
2 Retail and Consumer Sciences 590, 616.
3 Statistics 537, 538, 579, elective.
4 Cognate hours must include at least 3 hours at the 600 level.
5 Graduate-level courses that will help develop students' instructional capabilities.

**CERTIFICATE IN SERVICES MANAGEMENT**

The Department of Retail, Hospitality, and Tourism Management offers a graduate certificate in services management for students seeking continuing education and career advancement opportunities in the services industry.

The 12-hour certificate is available by completing Retail and Consumer Sciences 541, 538, and Hotel, Restaurant, and Tourism 510, 532.
CERTIFICATE IN TOURISM DEVELOPMENT
The Department of Retail, Hospitality, and Tourism Management offers a graduate certificate in tourism development for students seeking continuing education and career advancement opportunities related to tourism in public and private sectors. The 12-hour certificate is available by completing Hotel, Restaurant, and Tourism 523, 524, 435, 423.

DEPARTMENT OF THEORY AND PRACTICE IN TEACHER EDUCATION
http://web.utk.edu/~tpte/
Susan M. Benner, Head

Professors
Allington, R., PhD ..............................................Michigan State
Benner, S., EdD .....................................................Columbia
Brewer, E., EdD ......................................................Tennessee
Davis-Wiley, P., EdD ..............................................Florida
Hargis, C., EdD ......................................................Northern Colorado
Hatch, J., PhD .......................................................North Carolina
Long, V., (Associate Dean), EdD ................................Missouri (Columbia)
McGill-Franzen, A., PhD ......................................State University of New York (Albany)
Rider, R., (Dean), PhD .........................................North Carolina
Rowell, C., EdD ......................................................Georgia Peabody
Turner, T., EdD ......................................................Penn State
Ubben, G., PhD ......................................................Minnesota

Associate Professors
Anfara, V., PhD ......................................................New Orleans
Angelle, P., PhD ......................................................Louisiana State
Barclay-McLaughlin, M., PhD ................................Michigan
Cagle, L., (Associate Dean), EdD ................................Georgia
Davis, J., PhD ......................................................New Mexico
Gilrane, C., PhD ......................................................Illinois
Melear, C., PhD ......................................................Ohio State

Assistant Professors
Bell, S., PhD ......................................................Tennessee
Brommel, A., PhD .......................................................Southern Illinois
Brown, C., EdD ......................................................George Washington
Cady, J., PhD ......................................................Illinois State
Cihak, D., PhD ......................................................Georgia State
Gronenke, S., PhD .....................................................Virginia Tech
Hendricks, D., PhD ...............................................Alabama
Patterson, F., EdD ......................................................Texas A&M
Taylor, M., PhD ......................................................Missouri
Wooten, D., PhD ......................................................New York

MAJORS DEGREES
Education
Leadership studies in education concentration
Literacy studies concentration (specializations in ESL and reading)
Special education concentration
Teacher education concentration (specializations in early childhood education, elementary education, English education, mathematics education, science education, and social science education)

Educational Administration
MS, EdS
Teacher Education
MS

Track 1 (does not result in a teaching license)
Art education concentration
Early childhood special education concentration
Education of the deaf and hard of hearing concentration
Elementary education concentration
English education concentration
Foreign language/ESL education concentration
Mathematics education concentration
Reading education concentration
Science education concentration
Science education (informal education) concentration
Social science education concentration
Special education concentration

Track 2 (for individuals seeking an initial teaching license)
Art education concentration
Education of the deaf and hard of hearing concentration
Elementary teaching concentration
Middle grades teaching concentration
Modified and early childhood special education concentration
Secondary teaching concentration

Teacher Education EdS
Elementary education concentration
English education concentration
Foreign language/ESL education concentration
Mathematics education concentration
Reading education concentration
Science education concentration
Social science education concentration
Special education concentration

Graduate Certificate Program
Urban Education

Financial Assistance
The department offers a variety of scholarship and financial assistance opportunities and graduate assistantships for qualified students. For application forms visit the departmental website or contact our department office.

The College of Education, Health and Human Sciences offers the Master of Science, Specialist in Education, and Doctor of Philosophy degrees through the Department of Theory and Practice in Teacher Education. The department houses graduate programs in educational administration and supervision, and teacher education.

EDUCATIONAL ADMINISTRATION AND SUPERVISION
Through the educational administration and supervision programs, the department prepares entry-level and executive-level administrators for schools and colleges, and prepares policy scholars to serve in these organizations and in state, regional, and national policy agencies. The graduate degree programs are designed to enrich the knowledge, skills and values requisite to effective leadership in educational practice settings. The graduate programs focus on the preparation and development of administrative and instructional leaders who will serve in the diverse settings of schools and colleges, and educational units of government. Specialized coursework leading to the Urban Education Certificate is available in the area of urban administration.

MASTER OF SCIENCE
EDUCATIONAL ADMINISTRATION MAJOR
The Master of Science with a major in educational administration is intended for students who are seeking licensure in school administration and is directed toward providing beginning practitioners with the “best practice” knowledge and skills derived from the field and from research. Students are encouraged to transfer these practices into the world of school administration. Specifically, the MS is designed to prepare school principals and supervisors for licensure in Tennessee and for success in their initial administrative assignments. This two-year program combines evening (5:45-8:35 P.M.) and summer classes with on-the-job field activities organized around real school problems.

Initial Licensure Program
The Master of Science with a major in educational administration requires 36 hours of graduate-level coursework, a professional portfolio, and a comprehensive examination. Included in the 36 hours of coursework is a site-based internship. In order to obtain initial administrative licensure from the State of Ten-
nessee, graduates from this program must have three years of experience in schools (i.e., teaching, counseling, etc.). Additionally, students must pass the School Leaders Licensure Assessment (SLLA) examination that is required by the State of Tennessee to obtain initial licensure as a school administrator. It is expected that students admitted to this program possess leadership potential that has been demonstrated in prior experience.

The four major themes of the Master of Science program with a major in educational administration include:

- Expansion of the knowledge base that forms the framework of leadership and a broader conceptualization of educational organizations.
- Emphasis on the performance dimensions of the principalship and administration with particular attention given to the knowledge, skills, and dispositions underlying performance.
- Integration of theory and practice.
- Collaboration between universities and schools.

The University of Tennessee's Master of Science degree with a major in educational administration is a National Council for Accreditation of Teacher Education (NCATE) approved program that follows the Interstate School Leaders Licensure Consortium (ISLLC) performance standards and the National Policy Board for Educational Administration (NPBEA) recommendations for the knowledge, skills, and dispositions required today for school leaders. The program is also actively involved in the University Council for Educational Administration (UCEA), a consortium of leading research universities offering programs in educational administration.

**Admission**

The applications required by both the Office of Graduate and International Admissions and the Educational Administration program must be completed. A current Graduate Record Examination (GRE) score (within the past five years) is required for admission and a grade point average (GPA) of 2.7 or higher for undergraduate work or GPA 3.2 or higher for prior graduate work is required. Applicants to the MS program must possess teacher or school-related licensure; have, or will have, by program completion three years teaching experience or experience working in schools; and must interview with an admission committee. Candidates for the educational administration major must possess leadership potential preferably demonstrated by previous leadership experience. Three rating forms must be provided with recommendations from three present or former employers that identify a candidate’s strengths, weaknesses, and leadership potential. Interviews with applicants will be held each year in April. Courses will officially start in June.

**Requirements**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>1Core Requirements</th>
<th>2Specialization</th>
<th>3Research</th>
<th>4Internship</th>
<th>Educational Administration 580</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
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<td>15</td>
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<td>Total 45</td>
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</tbody>
</table>

**SPECIALIST IN EDUCATION**

**EDUCATIONAL ADMINISTRATION MAJOR**

The department offers a Specialist in Education degree with a major in educational administration. This degree is designed for individuals who already possess a master’s degree in education. Exceptions may be made only by the faculty of the program to which the student is applying. This degree may be used to fulfill the course requirements for obtaining licensure as a school administrator.

**Admission**

Application forms must be completed and submitted by March 15. These include the Office of Graduate and International Admissions’ application and for those interested in licensure, the Educational Specialist in Educational Administration application. A graduate GPA of 3.2 or higher, documentation of teaching or related experience (a minimum of three years of school-related experience is needed for licensure as a school administrator), and three rating forms that assess a candidate’s strengths, weaknesses, leadership, and scholarly potential are required.

**Requirements**

The EdS with a major in educational administration requires a minimum of 45 hours of study. A final comprehensive examination is required as is a culminating research paper or thesis depending on the program.

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>1Core Requirements</th>
<th>2Specialization</th>
<th>3Research</th>
<th>4Internship</th>
<th>Educational Administration 580</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
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<td></td>
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<tr>
<td>18</td>
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<tr>
<td>Total 45</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

1 Educational Administration 513, 515, 548, 553.
2 Educational Administration 523, 554, 583, 596; Theory and Practice in Teacher Education 595.
3 Educational Administration 516, *592; and an elective from outside the educational administration area chosen in consultation with advisor.
4 A thesis option is available with approval of advisor.

**GRADUATE CERTIFICATE IN URBAN EDUCATION**

The Department of Theory and Practice in Teacher Education offers a graduate certificate in urban education for experienced urban teachers. A cohort group is competitively selected each year. Participants complete a 12-credit, four-course program of study over a two-year period. First-year courses are Theory and Practice in Teacher Education 595 and 540. Second-year courses are Theory and Practice in Teacher Education 595 and 550.

**TEACHER EDUCATION**

The department offers programs for students seeking Tennessee licensure in the following areas – elementary teaching (K-6); middle grades teaching (4-8); secondary content field teaching (7-12) in English education, foreign language education, mathematics education, science education, social sciences education; art education (K-12); English as a Second Language (K-12); modified special education (K-12) and early childhood special education (PreK-3); special education for the deaf and hard of hearing; reading endorsement, and comprehensive special education endorsement. The program features a professional year internship with accompanying coursework, which may lead to a master’s degree with a major in teacher education. Specialized coursework leading to a certificate in urban education is also available in the area of urban teaching.

For admission, most programs (except the Track 2 Initial Licensure/ Master of Science) require current scores from the GRE.
Masters of Science in Teacher Education Major

The Master of Science with a major in teacher education has two tracks. Track 1 is for students who hold a valid Tennessee teaching license, or for those preparing to teach on the post-secondary level, or for those preparing for careers that do not require teacher licensure. Track 2 is designed for students seeking initial teacher licensure.

Both Track 1 and Track 2 offer thesis and non-thesis options and require students to submit a written comprehensive examination. In addition, students completing theses must sit for an oral examination of their theses.

Track 1

Track 1 non-licensure concentrations are Art education; Early childhood special education; Education of the deaf and hard of hearing; Elementary education; English education; Foreign language/ESL education; Mathematics education; Reading education; Science education; Science education (informal education); Social science education; and Special education.

Admission

Students must meet all current graduate school admission requirements in addition to submitting a departmental application and three rating forms.

Requirements

- Completion of a prescribed set of courses: Core Area (9 hours minimum) Theory and Practice in Teacher Education 517, Curriculum, Educational Research, and Evaluation 520 (thesis only), Curriculum, Educational Research, and Evaluation 580 (non-thesis), Instructional Technology 521, 573, or approved Instructional Technology course.
- Concentration Area (12 hours); Related Studies (3-12 hours).
- Completion of thesis or non-thesis option.

Thesis: Minimum 30 hours, satisfactory completion of written thesis and oral defense of thesis; 2/3 of total hours for MS degree must be 500-level or above.

Non-Thesis: Minimum 33 hours, satisfactory completion of written comprehensive examination; 2/3 of total hours for MS must be 500-level or above.

Art Education Concentration • Track 1

Advising Note for Thesis and Non-Thesis Options

- For both tracks, a comprehensive written examination is required during the final semester of work. An oral exam is given over the thesis. Students are expected to read and meet requirements from the Graduate Studies section, at the front of the catalog, with regard to admission applications, candidacy forms, scheduling comprehensive exam, as well as meeting all requirements regarding the courses in their graduate program.

<table>
<thead>
<tr>
<th>Art Education Concentration (Thesis Option) • Track 1</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Core Area</td>
<td>6</td>
</tr>
<tr>
<td>2 Concentration</td>
<td>18</td>
</tr>
<tr>
<td>Theory and Practice in Teacher Education 500 (Thesis)</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
</tr>
</tbody>
</table>

1 Theory and Practice in Teacher Education 517; Curriculum, Educational Research, and Evaluation 580.
2 Art Education 510, 520, 530, 540; Art History 400 or 500 level (3); studio art courses 400 or 500 level (3).

Art Education Concentration (Non-Thesis Option) • Track 1

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Area</td>
</tr>
<tr>
<td>Concentration</td>
</tr>
<tr>
<td>500-Level Electives</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

1 Theory and Practice in Teacher Education 517; Curriculum, Educational Research, and Evaluation 580.
2 Art Education 510, 520, 530, 540; Art History 400 or 500 level (3); studio art courses 400 or 500 level (3); Theory and Practice in Teacher Education 593 or 595.

CONTENT FIELDS TEACHING • TRACK 1

Concentrations are English Education, Foreign Language/ESL Education, Mathematics Education, Science Education, Social Science Education.

Non-Thesis Option

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Area</td>
</tr>
<tr>
<td>Concentration Area</td>
</tr>
<tr>
<td>Related Studies</td>
</tr>
<tr>
<td>All classes must be approved by major advisor.</td>
</tr>
</tbody>
</table>

* Theory and Practice in Teacher Education 517; Curriculum, Educational Research, and Evaluation 580; Instructional Technology 521, 573 or other approved Instructional Technology course.

Non-Thesis: Minimum 33 hours of approved coursework, and satisfactory completion of written and/or oral comprehensive examination. Two-thirds of the total hours for the MS must be 500 level or above.

Thesis Option

Minimum 30 hours of approved coursework, 6 hours of Theory and Practice in Teacher Education 500, and satisfactory completion of written thesis and oral defense of thesis. Two-thirds of the total hours for the MS must be 500 level or above.

EARLY CHILDHOOD SPECIAL EDUCATION CONCENTRATION • TRACK 1

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audiology and Speech Pathology 563</td>
</tr>
<tr>
<td>Special Education 554</td>
</tr>
<tr>
<td>Elementary Education 566</td>
</tr>
<tr>
<td>Elementary Education 567</td>
</tr>
<tr>
<td>Special Education 568</td>
</tr>
<tr>
<td>Special Education 504</td>
</tr>
<tr>
<td>Child and Family Studies 530</td>
</tr>
<tr>
<td>Curriculum, Educational Research, and Evaluation 580</td>
</tr>
<tr>
<td>Electives Advisor approval required</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
**EDUCATION OF THE DEAF AND HARD OF HEARING CONCENTRATION • TRACK 1**

Contact the department head for information on this concentration.

**ELEMENTARY EDUCATION CONCENTRATION • TRACK 1**

**Thesis Option**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1 Core</td>
<td>.9</td>
</tr>
<tr>
<td>2 Concentration</td>
<td>.12</td>
</tr>
<tr>
<td>3 Related Studies</td>
<td>.3</td>
</tr>
<tr>
<td>Theory and Practice in Teacher Education 500 (Thesis)</td>
<td>.6</td>
</tr>
<tr>
<td><strong>Total 30</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. Curriculum, Educational Research and Evaluation 580; Theory and Practice in Teacher Education 517; 3 hours determined by student and advisor.
2. Choose from at least three areas – reading education, language arts, education, mathematics education, science education, social studies education, elementary curriculum, middle school curriculum.
3. Determined by student and advisor.

**Non-Thesis Option**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Core</td>
<td>.12</td>
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<tr>
<td>2 Concentration</td>
<td>.15</td>
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<tr>
<td>3 Related Studies</td>
<td>.6</td>
</tr>
<tr>
<td><strong>Total 33</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. Curriculum, Educational Research and Evaluation 580; Theory and Practice in Teacher Education 517; 6 hours determined by student and advisor.
2. Choose from at least three areas – reading education, language arts, education, mathematics education, science education, social studies education, elementary curriculum, middle school curriculum.
3. Determined by student and advisor.

**READING EDUCATION CONCENTRATION TRACK 1**

**Thesis Option**

<table>
<thead>
<tr>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>1 Core</td>
<td>.9</td>
</tr>
<tr>
<td>Concentration (reading education courses)</td>
<td>.12</td>
</tr>
<tr>
<td>2 Related Studies</td>
<td>.3</td>
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<tr>
<td>Theory and Practice in Teacher Education 500 (Thesis)</td>
<td>.6</td>
</tr>
<tr>
<td><strong>Total 30</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. Curriculum, Educational Research, and Evaluation 580; Theory and Practice in Teacher Education 517; 3 hours determined by student and advisor.
2. Choose 3 hours from language arts education, English education, elementary curriculum, elementary education, middle school curriculum, special education, or educational psychology.

**Non-Thesis Option**

<table>
<thead>
<tr>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>1 Core</td>
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</tr>
<tr>
<td>Concentration (reading education courses)</td>
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</tr>
<tr>
<td>2 Related Studies</td>
<td>.9</td>
</tr>
<tr>
<td><strong>Total 33</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. Curriculum, Educational Research, and Evaluation 580; Theory and Practice in Teacher Education 517; 6 hours determined by student and advisor.
2. Choose 9 hours from language arts education, English education, elementary curriculum, elementary education, middle school curriculum, special education, or educational psychology.

**SCIENCE EDUCATION (INFORMAL EDUCATION) CONCENTRATION • TRACK 1**

**Thesis Option**

<table>
<thead>
<tr>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>1 Core</td>
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<tr>
<td>2 Concentration</td>
<td>.12</td>
</tr>
<tr>
<td>3 Related Studies</td>
<td>.3</td>
</tr>
<tr>
<td>Theory and Practice in Teacher Education 500 (Thesis)</td>
<td>.6</td>
</tr>
<tr>
<td><strong>Total 30</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. Curriculum, Educational Research, and Evaluation 580; Theory and Practice in Teacher Education 517; 3 hours determined by student and advisor.
2. Science Education 506, 509, 510; 3 hours determined by student and advisor.
3. Determined by student and advisor.

**Non-Thesis Option**

<table>
<thead>
<tr>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>1 Core</td>
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<tr>
<td>2 Concentration</td>
<td>.15</td>
</tr>
<tr>
<td>3 Related Studies</td>
<td>.6</td>
</tr>
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<td><strong>Total 33</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. Curriculum, Educational Research, and Evaluation 580; Theory and Practice in Teacher Education 517; 6 hours determined by student and advisor.
2. Science Education 506, 509, 510; 6 hours determined by student and advisor.
3. Determined by student and advisor.

**SPECIAL EDUCATION CONCENTRATION TRACK 1**

**Thesis Option**

<table>
<thead>
<tr>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>1 Core</td>
<td>.9</td>
</tr>
<tr>
<td>2 Concentration</td>
<td>.15</td>
</tr>
<tr>
<td>Theory and Practice in Teacher Education 500 (Thesis)</td>
<td>.6</td>
</tr>
<tr>
<td><strong>3 Total 30</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. Special Education 587 or Theory and Practice in Teacher Education 517; Special Education 586, 590.
2. Select (with major advisor) from affective motivational disorder (6-9); general special education (6-9); elementary education (6-9); reading education (6-9); cognitive education (6-9); gifted education (6-9); modified programs (6-12); comprehensive programs (6-12). Others by committee approval.
3. Coursework (24 hours); thesis (6 hours).

**Non-Thesis Option**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Core</td>
<td>.9</td>
</tr>
<tr>
<td>2 Concentration</td>
<td>.27</td>
</tr>
<tr>
<td><strong>3 Total 36</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. Special Education 587 or Theory and Practice in Teacher Education 517; Special Education 586, 590.
2. Select (with major advisor) from affective motivational disorder (6-9); general special education (6-9); elementary education (6-9); reading education (6-9); cognitive education (6-9); gifted education (6-9); modified programs (6-12); comprehensive programs (6-12). Others by committee approval.
3. Problem courses in lieu of thesis (30 hours); additional problem courses (6 hours); oral exams over problem courses.

**TRACK 2: INITIAL LICENSURE PROGRAMS**

The Track 2 master’s is intended for individuals desiring to earn teacher licensure. Applicants to this program must first be admitted to teacher education. Elementary or secondary education applicants must complete the equivalent of an undergraduate minor in either elementary or secondary education. Applica-
tions to the middle grades teaching program complete an academic minor in one of the following licensure areas – mathematics, science, social studies and language arts, or foreign language arts. Post-baccalaureate students interested in seeking licensure in art education, special education, or in other fields that require students to earn an undergraduate major would be expected to complete an equivalent undergraduate program of study. Please refer to the catalog for complete details. Individuals are encouraged to contact the College’s Student Services Center, A332 Claxton Complex, for a diagnostic interview and to develop a tentative course of study and time line.

Requirements

Track 2 Common Course Requirements

Master’s Track 2 programs are 36-hour (non-thesis); 42-hour (thesis). Students, regardless of teaching area (e.g., elementary, secondary, etc.), complete a common, teacher licensure, core of 24-hours during the professional year (see below).

Professional Year Courses (24 hours)

- Education 574 (2), 575 (12), 591 (4), and specialty studies (6).

Additional Course Requirements (12 hours)

In addition to the above common core of courses, students must complete an additional 12 hours of coursework that is unique to their particular teacher preparation field.

Art Education
- Art Education 510, 520, 530, 540.

Early Childhood Special Education
- Special Education 554; Elementary Education 566, 567; Special Education 568.

Education of the Deaf and Hard of Hearing
- Research elective (3); non-specified electives (9).

Elementary Teaching
- Theory and Practice in Teacher Education 517; 9 hours of educational electives (chosen from at least three areas): historical, philosophical, or social foundations, instructional technology, reading education, language arts education, science education, social science education, elementary education, middle school curriculum.

Middle Grades Teaching
- Theory and Practice in Teacher Education 542; Reading Education 543; an education course in the primary area of licensure (see faculty advisor).

Modified and Comprehensive Special Education
- Special Education 553, 590; 6 hours of electives (see advisor).

Secondary Teaching
- Theory and Practice in Teacher Education 517; Curriculum, Educational Research and Evaluation 534 or 541 or 558, or an elective in the history of sociology or philosophy of education; 6 hours of specialty area electives (see faculty advisor).

SPECIALIST IN EDUCATION

TEACHER EDUCATION MAJOR

The department offers a Specialist in Education degree with a major in teacher education. This degree is designed for those students who already possess a master’s degree in education. Exceptions may be made only by the faculty of the program to which the student is applying. The Specialist in Education with a major in teacher education encompasses concentrations in elementary education; English education; foreign language/ESL education; mathematics education; reading education; science education; social science education; and special education.

These concentrations require completion of a minimum of 30 hours of coursework beyond the master’s, including 6 hours in core courses, 18 hours in specialized courses, and 6 hours to be determined by the student’s committee. Both thesis and non-thesis options are available.

Admission

Candidates must complete both university and departmental applications, including the Office of Graduate and International Admissions’ application and the Teacher Education Specialist application from the department. A graduate GPA of 3.2 or higher, documentation of teaching or related experience, and three rating forms with recommendations that assess a candidate’s strengths, weaknesses, leadership, and scholarly potential are required. Some concentrations have specific application deadlines while others have a rolling admissions policy. Some concentrations require a minimum of three years of teaching or related experience. In addition, some concentrations have additional requirements such as writing samples, work samples, or interviews. The departmental EdS application, rating forms, specific program deadlines, and other requirements are available from the department.

Requirements

The total EdS program involves a minimum of four semesters of study with no fewer than 60 hours of graduate credit beyond the baccalaureate, including research/thesis hours.

Education courses at the 400-level required for licensure are not eligible. At least 2/3 of semester hours accumulated in master’s and all of the last 30 hours of coursework must be in 500- or 600-level courses. The EdS thesis must be approved by the student’s committee prior to submission to the Office of Graduate Student Services for final approval and acceptance. The student must register for thesis hours during this time.

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Area</td>
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</tr>
<tr>
<td>Concentration Specialty Area Methods</td>
<td>12</td>
</tr>
<tr>
<td>Research</td>
<td>.6</td>
</tr>
<tr>
<td>Related Studies</td>
<td>.6</td>
</tr>
<tr>
<td>Total (Thesis and Non-Thesis)</td>
<td>30</td>
</tr>
</tbody>
</table>

1 Must include one course from two of the following areas outside the concentration: curriculum or leadership anthropological, historical, philosophical or social foundations; human growth and development; PreK-4 teaching methodology; instructional technology.
2 Theory and Practice in Teacher Education 593, 594, 595.
3 Theory and Practice in Teacher Education 518 or 500 (thesis).
4 Must be related to focus of degree and must be outside specialty area education program, e.g., English, reading, speech, drama, communication, instructional technology, math, science, social sciences.

EDUCATION MAJOR

Faculty from the department participate in the delivery of the PhD with a major in education. Concentrations and specializations are available in leadership studies in education; literacy studies (specialization in ESL or reading); special education; and teacher education (specialization in early childhood education, elementary education, English education, mathematics education, science education, or social science education).

Information on admission appears at the beginning of the College of Education, Health, and Human Sciences section of this catalog.
DOCTOR OF PHILOSOPHY
EDUCATION MAJOR
LEADERSHIP STUDIES IN EDUCATION
CONCENTRATION
LITERACY STUDIES CONCENTRATION
SPECIAL EDUCATION CONCENTRATION
TEACHER EDUCATION CONCENTRATION

Students in these concentrations share a common set of course requirements with credits required as shown below. Doctoral committees may require students to take additional hours to fulfill degree requirements.

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Research Area</td>
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<tr>
<td>8</td>
<td>Core Requirements</td>
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<tr>
<td>15</td>
<td>Concentration/Specialization</td>
</tr>
<tr>
<td>6</td>
<td>Cognate</td>
</tr>
<tr>
<td>24</td>
<td>Dissertation</td>
</tr>
</tbody>
</table>

1 Must include Theory and Practice in Teacher Education 640 (3) or Educational Administration 640 (3).

2 Seminar in Primary Concentration (3); Theory and Practice in Teacher Education 604, 605, 617.

Note: Please refer to the academic department for additional information on course requirements in each of these areas.

Admission

Students must submit the University of Tennessee, Knoxville, Graduate Application to the Office of Graduate and International Admissions. Students must also submit the Theory and Practice in Teacher Education Departmental Application for Graduate Study. Applicants must submit current (taken within the past 5 years) GRE scores that equal or exceed the minimums expected for applicants to the PhD with a major in education. Three letters of reference from those who know of the candidate’s record and promise are required. An overall GPA of 3.3 in previous graduate study is required for admission to doctoral study and an interview with the faculty may be required. Admissions decisions are made on a holistic basis to discern the candidate’s promise for doctoral study and to ascertain the match of the candidate’s educational goals with the resources and goals of the department.
The college had its beginnings in the university when surveying was introduced into the curriculum in 1838. The first two professional degrees, Civil Engineer and Mining Engineer, were established in 1879 at the same time that the Board of Trustees authorized the establishment of a graduate school. Known as Mechanic Arts originally, Engineering became a college in 1904.

The purpose of the College of Engineering is to educate men and women to the high levels of research, technical competence, and social understanding that will enable them to fulfill their responsibilities as professional engineers.

Graduate programs of the College of Engineering provide opportunities for advanced study leading to the Master of Science and the Doctor of Philosophy degrees. For a listing, consult majors and degrees available on the chart at the front of this catalog.

Facilities for research and service include the Center for Homeland Security and Counterproliferation, Center for Materials Processing, Center for Transportation Research, Maintenance and Reliability Center (MRC), and the Scintillation Materials Research Center (SMRC).

Dual MS-MBA

The College of Business Administration and the College of Engineering offer an integrated program leading to the conferment of the Master of Business Administration degree with a major in engineering administration and the Master of Science degree in one of the following engineering majors – aerospace, biomedical, chemical, computer, electrical, engineering science, industrial, materials science, mechanical, and nuclear engineering (refer to each major for specific information and requirements).

The establishment of the dual degree program addresses the critical need for personnel trained in both engineering and management who can integrate an increasingly complex body of knowledge for rapid introduction of new products to the marketplace. The objective of the dual degree program is to prepare graduates to take a leading management role in companies that must react quickly to a dynamic market where forces of competition require rapid changes via short cycles in design, manufacturing, and product development. Since the development of a commercial product is a central part of the program, the MS-MBA is also for students who wish to become entrepreneurs.

Admission

Applications are accepted for fall semester only. Applicants for the MS-MBA program must make separate application to, and be competitively and independently accepted by, the Office of Graduate and International Admissions for the Master of Business Administration degree program and the office of Associate Dean for Student Affairs at the College of Engineering. Students will initially apply for the MBA program, indicating on their application the intent to pursue the dual MS-MBA program and the appropriate engineering major (refer to the MBA program for separate instructions). Students accepted for both the MBA and the MS with a major in one of the participating engineering majors will be assigned to Dual Degree Program Committee advisors, who will be responsible for course approval and supervision of the students’ progress through the dual program.

Applications by U.S. citizens and permanent residents received after the MBA application deadline (March 1) will be considered as space allows. Additional information is required and different application dates are established by the Office of Graduate and International Admissions for international students.

Requirements

All engineering students enrolled in the program must complete common coursework designed to provide them with an integrated, multidisciplinary teamwork experience. The MBA curriculum in product development and manufacturing consists of 30 hours of common coursework in the College of Business Administration and 12 hours of common coursework in the College of Engineering. Engineering common coursework includes a culminating 3-hour integrated project course requiring a comprehensive report, and a final examination as required by the Dual Degree Program Committee, to be taken during the first session of summer following the second year.

During the second year, dual degree candidates will take courses in their engineering major. The coursework for each option is designed to provide students with a concentration in their major and advanced skills to accomplish their teamwork assignments.

The dual degree candidate must satisfy the curriculum and graduation requirements of both the engineering major being pursued and the College of Business Administration. Students withdrawing from the dual degree program before completing both degrees will not receive credit toward graduation in either degree program for courses taken in the other degree program,
Core Graduate Classes in Chemical Engineering

A graduate degree in chemical engineering requires the mastery of the core fundamentals of the discipline. These fundamentals are represented by five core courses – 505, 531, 547, 548, and 551. Both the master’s (thesis and non-thesis) and doctoral degrees in chemical engineering require the successful completion of these core courses.

Additional Coursework

In addition to the core classes, supplementary coursework appropriate for each graduate degree will be needed. The coursework beyond the core courses is determined in consultation with the student’s advisor and dissertation or thesis committee and must be approved by the committee and the department head.

MASTER OF SCIENCE CHEMICAL ENGINEERING MAJOR
Requirements

Thesis Option

The standard master’s program includes a thesis and leads to the Master of Science. Minimum departmental requirements are as follows.

- A total of at least 21 semester hours in graduate-level courses (excluding 500 and 501) in chemical engineering and related areas beyond the baccalaureate. These courses must include the five core courses.
- Research and a thesis to give at least 9 hours of credit in 500.
- Active participation in graduate seminars in the department. Resident students must register for 501 every semester it is offered.
- A final oral examination covering the thesis and related fields and graduate coursework.

Non-Thesis Option

Under certain conditions, a candidate may apply for a non-thesis program. To be eligible, a candidate must show evidence of significant professional experience after the baccalaureate degree. At least five years of industrial experience or research publications would be examples of such evidence. The departmental faculty will consider each application individually. Upon acceptance, the requirements for completion of the non-thesis option are as follows.

- A total of at least 33 hours in graduate courses in chemical engineering and related areas beyond the baccalaureate. These courses must include the five core courses.
- Completion of a critical review of the literature and other sources in an area related to chemical engineering (Chemical Engineering 580).
- A written comprehensive examination over the major field and an oral examination covering the review paper and related areas.

DUAL MS-MBA

Chemical Engineering Major

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>August – First Year</td>
</tr>
<tr>
<td>Business Administration 511 MBA Core I</td>
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<tr>
<td>Business Administration 512 MBA Core II</td>
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<tr>
<td>Mechanical Engineering 504</td>
</tr>
<tr>
<td>Spring</td>
</tr>
<tr>
<td>Business Administration 513 MBA Core III</td>
</tr>
<tr>
<td>Mechanical Engineering 506</td>
</tr>
<tr>
<td>Mechanical Engineering 508</td>
</tr>
</tbody>
</table>
Summer
- Internship .................................................. 1
  Chemical Engineering 509 .................................. 1
Fall – Second Year
Chemical Engineering 509 .................................. 1
- Departmental/Engineering Courses* .................... 9
Spring
- MBA Hub Course Elective ................................ 3
Chemical Engineering 509 .................................. 1
- Departmental/Engineering Courses* .................... 9
Summer (first session)
Chemical Engineering 594 ................................ 3

Total 60

* The departmental courses include the five required departmental core courses.

DOCTOR OF PHILOSOPHY
CHEMICAL ENGINEERING MAJOR
Requirements
Students may apply directly to the PhD program either with or without having completed a master’s thesis. Students proceeding directly to the PhD program from a baccalaureate degree should submit evidence of outstanding performance in a rigorous undergraduate program and the ability to perform independent research at the doctoral level.

A total of 72 hours between the bachelor’s degree are required for the PhD. These consist of coursework hours and research and dissertation hours (Chemical Engineering 600). Specifically, the departmental requirements consist of the satisfactory completion of:

- A minimum of 36 semester hours in graduate-level courses (excluding 600) in chemical engineering and related fields beyond the baccalaureate. These courses must include the five core courses and at least 6 hours of courses at the 600 level from the University of Tennessee, Knoxville.
- A comprehensive examination consisting of a written part and an oral part. The written part covers the core fundamentals of the program. The defense of the dissertation proposal constitutes the oral portion of the exam.
- A minimum of 24 hours of research and dissertation credit in Chemical Engineering 600. Registration must be continuous from the time research begins. (See the Continuous Registration requirement in the Graduate Studies section of this catalog.)
- Successful oral defense of the dissertation before the student’s dissertation committee.
- Active participation in graduate seminars conducted by the department. Resident students must register for 501 every semester offered.

GRADUATE CERTIFICATE IN MAINTENANCE AND RELIABILITY ENGINEERING
The College of Engineering offers a graduate certificate in maintenance and reliability engineering. The program is designed primarily for part-time students in that several of the courses are available through distance education.

The 12-hour certificate is earned by completing 483 and 484, which are cross-listed among all participating departments in the College of Engineering, plus two elective courses selected from a list of courses provided by the participating departments. Currently, the available elective courses are Chemical Engineering 561, Industrial Engineering 516 and 591, Mechanical Engineering 534 and 599, and Nuclear Engineering 579 and 585. The selection of elective courses is determined through an advising conference with each individual student, and is based on the student’s personal interests, academic background, and work experience. Applicants must meet the minimum criteria established by the Graduate Council.

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
http://www. engr.utk.edu/civil/
Gregory D. Reed, Head
Richard M. Bennett, Graduate Liaison

Professors
Bennett, R.M., PhD, PE ....................................... Illinois
Burdette, E.G. (Fred N. Peebles Professor), PhD, PE ........ Illinois
Chatterjee, A., PhD, PE ............................................. North Carolina State
Davis, W.T. (Associate Dean), PhD ........................... Tennessee
Deatherage, J.H., PhD, PE ..................................... Tennessee
Drumm, E.C., PhD, PE .......................................... Arizona
Penumadu, D., PhD .............................................. Georgia Tech
Reed, G.D., PhD, PE ............................................. Arkansas
Robinson, R.B. (Fisher Professor), PhD, PE ................. Iowa State
Urbanik, T. (Condra Professor and Goodrich Chair), PhD, PE ........................................ Texas A&M

Associate Professors
Cox, C.D. (Research Fellow), PhD, PE ....................... Penn State
Han, L.D., PhD .................................................. California (Berkeley)
Miller, T.L., PhD, PE ........................................... Tennessee
Richards, S.H., PhD, PE ....................................... Tennessee
Robinson, K.G., PhD .............................................. Virginia Tech

Assistant Professors
Agnihotri, S., PhD .............................................. Illinois
Gentry, R., PhD, PE ............................................. Memphis
Ma, Z., PhD, PE ................................................. Nebraska
Huang, B., PhD, PE ............................................. Louisiana State
Schwartz, J., PhD, PE ......................................... Illinois
Zhao, Q., PhD .................................................. California (Berkeley)

MAJORS
Civil Engineering
- Construction engineering concentration
- Environmental engineering concentration
- Geotechnical/Materials engineering concentration
- Public works engineering concentration
- Structural engineering concentration
- Transportation engineering concentration

Environmental Engineering
- Air quality concentration
- Environmental risk assessment concentration
- Mixed waste management concentration
- Waste management concentration
- Water quality concentration
- Water resources concentration

MASTERS DEGREES
Civil Engineering
MS, PhD
- Construction engineering concentration
- Environmental engineering concentration
- Geotechnical/Materials engineering concentration
- Public works engineering concentration
- Structural engineering concentration
- Transportation engineering concentration

Environmental Engineering
MS
- Air quality concentration
- Environmental risk assessment concentration
- Mixed waste management concentration
- Waste management concentration
- Water quality concentration
- Water resources concentration

MASTER OF SCIENCE
The Master of Science programs in civil engineering and environmental engineering are offered to graduates of recognized undergraduate curricula. Both degree programs have thesis and non-thesis options. It is the policy of the department that students supported by university-related financial aid complete an integrated project, which is defined as a Thesis (Civil Engineering/Environmental Engineering 500) or Special Problems (Civil Engineering/Environmental Engineering 590). The appointment letter may specify which of the two options must be selected.

CIVIL ENGINEERING MAJOR
Departmental requirements provide that for a major in civil engineering, the bachelor’s degree must be in civil engineering, or certain undergraduate prerequisite courses must be taken before Admission to Candidacy. The Department of Civil and Environmental Engineering offers both thesis and non-thesis options for the Master of Science with a major in civil engineering. Either option must be approved by the student’s major professor.
The requirements for the PhD include the following.

**CIVIL ENGINEERING MAJOR**

A minor may be selected but is not necessarily required. Courses selected from a list provided by the student's committee.

A minimum of 9 semester hours of advanced engineering design coursework is required. This may include a 3-hour special problems course to be completed under the direction of the student's major professor.

A minor may be selected but is not necessarily required.

**ENVIRONMENTAL ENGINEERING MAJOR**

For the Master of Science with a major in environmental engineering, normally a bachelor's degree in a field of engineering is required. For a student who does not have an engineering background, the following minimum prerequisite courses will be required – Engineering Fundamentals 151, 152; Statistics 251; Civil Engineering 380, 390, and 395 or 416; Mathematics 141, 142, 231, 241; Chemistry 120, 130. In general, these must be completed with a B average before courses for graduate credit can be taken. The Department of Civil and Environmental Engineering offers both thesis and non-thesis options for the Master of Science with a major in environmental engineering. Either option must be approved by the student's major professor.

**Thesis Option**

A minimum of 30 semester hours of approved graduate courses, including 6 hours of thesis and a minimum of 15 semester hours of approved environmental engineering coursework, is required. A minor may be selected but is not required.

**Non-Thesis Option**

A minimum of 33 semester hours of approved graduate courses is required. This may include a 3-hour special problems course to be completed under the direction of the student's major professor. The major includes a minimum of 18 semester hours of approved environmental engineering coursework, including a minimum of 9 semester hours of advanced engineering design courses selected from a list provided by the student's committee. A minor may be selected but is not necessarily required.

**DOCTOR OF PHILOSOPHY**

**CIVIL ENGINEERING MAJOR**

A graduate program leading to the Doctor of Philosophy is offered with a major in civil engineering. Specific departmental requirements for the PhD include the following.

- A minimum of 72 semester hours beyond the bachelor's degree, exclusive of credit for the MS thesis. Of this number, a minimum of 24 hours in 600 Doctoral Research and Dissertation will be required. It is expected that the research work will be in journal publication form prior to approval of the dissertation.
- A minimum of 18 semester hours of graduate courses in civil engineering or environmental engineering, exclusive of thesis or dissertation credit, at least 6 hours of which must be 600-level courses.
- Additional coursework in civil engineering, environmental engineering, or related scientific and engineering fields, amounting to a minimum of 18 semester hours, subject to approval by the student's faculty committee. These related fields will normally include such disciplines as mechanics, chemistry, mathematics, microbiology, physics, and other engineering fields. A minimum of 6 semester hours of mathematics will be required beyond the civil engineering undergraduate requirements.
- At the discretion of the student's dissertation committee and depending on the student's background, more than 36 hours of courses may be required.
- A maximum of 24 course hours from the master's degree may be used to satisfy the course requirements for the PhD.

- One foreign language if the student's faculty committee feels that a reading knowledge of a foreign language is crucial to the student's research efforts.
- Upon completion of at least one-half of all coursework, each student must pass a comprehensive examination.

After completion of the dissertation, prior to graduation, each student must pass a dissertation defense examination administered by a faculty committee.

**Environmental Policy Minor**

The department participates in a program designed to give graduate students an opportunity to develop an interdisciplinary specialization in environmental policy. See Department of Political Science for program description.

**DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING**

**http://www.ece.utk.edu/**

**Samir El-Ghazaly, Head**

**Jack S. Lawler, Graduate Liaison**

**Professors**

Abidi, M., PhD ...........................................Tennessee
Birdwell, J.D., PhD ..........................Massachusetts Institute of Technology
Bomar, B.W. (UTSI), PhD .........................Tennessee
Boudin, D.W., PhD ................................Michigan State
El-Ghazaly, S.M., PhD ............................Texas
Kuo, W. (Dean and University Distinguished Professor), PhD ..Kansas State
Lawler, J.S., PhD ................................Ben-Gurion (Israel)
Pace, M.O., PhD .................................Georgia Tech
Pujol, S.A. (UTSI), PhD ................................Vanderbilt
Roberts, M.J., PhD ................................Texas

**Associate Professors**

Chilby, P.B., PhD ........................................New Mexico State
Fathy, A., PhD ..................................Politechnic Institute of New York
Islam, S.K., PhD .................................Connecticut
Qi, H., PhD ...........................................North Carolina State
Smith, L.M. (UTSI), PhD ...............................Tennessee
Tolbert, L.M., PhD ................................Georgia Tech

**Assistant Professors**

Bialock, B.J., PhD ....................................Georgia Tech
Djouadi, S. M., PhD ...............................McGill (Canada)
Ehshahy, I., PhD ..................................Ben-Gurion (Israel)
Farquhar, E.D., PhD .................................Georgia Tech
Ferdjallah, M., PhD ..................................Texas (Austin)
Kong, S.G., PhD ........................................UCLA
Li, F., PhD ...........................................Virginia Tech
Peterson, G.D., DSc ..............................Washington University
Wu, J., PhD ........................................Notre Dame

**Emeriti Faculty**

Alexeff, I., PhD, PE ..................................Wisconsin
Gonzalez, R.C., PhD .................................Texas A&M
Green, W.L., PhD ....................................Florida
Roth, J.R., PhD ......................................Cornell

**MAJORS DEGREES**

**Computer Engineering**

- Computer architecture concentration
- Computer networks concentration
- Computer vision concentration
- Data fusion concentration
- Data structures concentration
- Data visualization concentration
- Embedded systems concentrations
- Image processing concentration
- Information systems concentrations
- VLSI system design concentration

**Computer Engineering MS-MBA**
The Department of Electrical and Computer Engineering offers graduate programs leading to the Master of Science and Doctor of Philosophy with a major in electrical engineering or computer engineering.

All students must file a Master's Program Plan with the department. The departmental graduate committee is responsible for administering, promoting, and advancing the general well being of the graduate program. Departmental actions regarding a graduate student may be appealed in writing, first to the departmental graduate committee and then to the department faculty.

The requirements outlined below apply to graduate degrees in both electrical engineering and computer engineering. The research project emphasis and/or the specific courses taken will determine the actual degree awarded.

**MASTER OF SCIENCE**

**COMPUTER ENGINEERING MAJOR**

Electrical Engineering

**Electrical Engineering**

- MS, PhD

- Circuit theory concentration
- Communication theory concentration
- Computers concentration
- Control systems concentration
- Electro-Optics concentration
- Electromagnetic theory concentration
- Plasma engineering concentration
- Power electronics concentration
- Power systems concentration
- Solid-State electronics concentration

**Electrical Engineering**

MS-MBA

Students may choose between a thesis option, a non-thesis course-only option, and a non-thesis project option MS program.

1. **Thesis Option (30 hours)**
   - 6 semester hours of mathematics at the 400 level* or above selected from a list approved by the graduate committee.
   - 6 semester hours of ECE courses at the 500 level or above.
   - 6 semester hours of non-ECE courses approved by the student's master committee and the graduate committee.
   - An additional 18 semester hours of 400-level* or above work in electrical and computer engineering, with at least 6 hours of 500-level or 600-level work in each of two areas of electrical and computer engineering.
   - Master's thesis, totaling 6 hours.
   - A final oral examination covering the thesis and related coursework.

2. **Non-Thesis Courses Only Option (30 hours)**
   - 6 semester hours of mathematics at the 400 level* or above selected from a list approved by the graduate committee.
   - 6 semester hours of ECE courses at the 500 level or above.
   - 6 semester hours of non-ECE courses approved by the student's master committee and the graduate committee.
   - An additional 24 semester hours of 400-level* or above work in electrical engineering or computer engineering with 18 of the hours at the 500 level or 600 level.
   - Of the 18 hours required at the graduate level, at least 6 must be in each of two areas of electrical engineering or computer engineering and an additional 6 hours outside of the two areas.
   - A final comprehensive written examination. This examination will be given in January and August.

3. **Non-Thesis Project Option (30 hours)**
   - 6 semester hours of mathematics at the 400 level* or above selected from a list approved by the graduate committee.
   - 6 semester hours of ECE courses at the 500 level or above.
   - 6 semester hours of non-ECE courses approved by the student's master committee and the graduate committee.
   - An additional 21 semester hours of 400-level* or above work in electrical engineering or computer engineering, with 15 of the hours at the 500 level or 600 level.
   - Of the 15 hours required at the graduate level, at least 6 must be in each of two areas of electrical engineering or computer engineering and an additional 3 hours of work outside of the two areas.
   - ECE 501 (Project in Lieu of Thesis) with a minimum grade of B. This course will be administered by the student's master's committee. A written project proposal describing what the student will do in the course must be submitted in advance for the graduate committee's approval. A written final report and oral presentation is required and one copy of the final draft must be submitted to the graduate committee.
   - A final written and oral examination covering the project and related coursework.

*NOTE: At least two thirds of the minimum required hours must be taken in courses numbered at or above the 500 level.
DOCTOR OF PHILOSOPHY

COMPUTER ENGINEERING MAJOR

ELECTRICAL ENGINEERING MAJOR

The PhD is offered with a major in computer engineering or electrical engineering. Exceptional students holding the bachelor’s degree may be admitted to the doctoral program without first obtaining a master’s degree. Candidates holding the MS must satisfy requirements 2 through 7 below while candidates holding only the BS must satisfy requirements 1 through 7.

Applicants are required to submit scores from the General Graduate Record Exam (GRE). A TOEFL score of 550 on the written exam, 213 on the computer exam, or 80 on the Internet-based Test is required for non-native speakers of English, including those who have earned degrees at U.S. institutions. Specific departmental requirements for the PhD include the following.

1. For students holding only a BS, a minimum of 48 course hours is required. The first 24 hours should satisfy:
   a. 6 semester hours of mathematics at the 400 level or above selected from a list approved by the graduate committee, or 6 semester hours of ECE courses at the 500 level or above, or 6 semester hours of non-ECE courses approved by the student’s master committee and the graduate committee.
   b. An additional 18 semester hours of 400-level or above work in electrical and computer engineering, with at least 6 hours at the 500-level or 600-level in each of two areas of electrical and computer engineering.

   In addition, the student must satisfy requirements 2 through 7 below.

2. For students holding an MS, a minimum of 24 semester hours of coursework excluding research and dissertation credit or seminar courses must be taken at the University of Tennessee, Knoxville. These hours must include the following:
   a. A minimum of 12 semester hours in electrical and computer engineering at the 500 and 600 levels.
   b. A minimum of 9 semester hours of 600-level coursework. At least 3 hours of this work must be in an area other than the student’s major area.
   c. A minimum of 6 hours of mathematics at the 500 level or above and approved by the departmental graduate committee.

3. Satisfactory performance on a qualifying examination. Separate qualifying examinations are offered for electrical engineering and for computer engineering. The qualifying examination is prepared by the Electrical and Computer Engineering faculty and consists of two 4-hour written examinations covering courses required in the undergraduate electrical and computer engineering curriculum through the junior level. The qualifying examination is offered twice each year (January and August), and a student is to take it the first time it is offered after the student enrolls in the program. A student who fails the qualifying examination must take and pass the examination the next time it is offered to remain in the program. A minimum of 12 hours of coursework must be completed after the student has taken the qualifying examination the first time.

4. Satisfactory performance on a comprehensive examination. The comprehensive examination is administered by the student’s committee. The exam results are reported to the graduate committee for approval and the exam is filed in the department. The comprehensive exam is given when the student is ready to apply for admission to candidacy. The comprehensive examination consists of both written and oral parts. The written part consists of a complete review of the literature in the student’s dissertation topic and a review of the major tools to be used in the dissertation work. The student’s committee may require additional written sections. The student must demonstrate a mastery of the dissertation area, ability to think analytically and creatively, skill in using academic resources, and ability to complete the dissertation satisfactorily. The oral part of the comprehensive examination consists primarily of a professional presentation of a proposal for dissertation work and its defense. The committee may cover additional topics in the oral part.

5. Participation in departmental seminars.
7. Successful public defense of the dissertation by the student.

DEPARTMENT OF INDUSTRIAL AND INFORMATION ENGINEERING

http://www.engr.utk.edu/ie/

Adejey B. Badiru, Head
Denise F. Jackson, Graduate Liaison

Professors

Badiru, A.B., PhD, PE ........................................ Central Florida
Ding, F., PhD .................................................. North Carolina State
Garcia, A. (Associate Dean), PhD .............................. University of Illinois at Urbana-Champaign
Garrison, G.W. (UTSI), PhD ................................. North Carolina State
Kuo, W. (Dean and University Distinguished Professor), PhD .......................... Kansas State

Associate Professors

Aikens III, C.H., PhD ....................................... Tennessee
Hailey, M.L. (UTSI), PhD, PE ............................ Texas Tech
Jackson, D.F., PhD, PE .................................... Tennessee
Sawhney, R.S., PhD ......................................... Tennessee

Assistant Professors

Ford, R.E., PhD ............................................... Tennessee
Jeong, M.K., PhD ............................................ Georgia Tech
Kim, D., PhD .................................................. Florida
Kong, D., PhD ................................................ Penn State
Li, X., PhD ...................................................... Arizona State

Research Faculty and Staff

Halstead, P.D., BS ........................................... State University of New York
MAJOR DEGREES

Industrial Engineering
  MS, PhD
  Engineering management concentration
  Human factors engineering concentration
  Information engineering concentration
  Manufacturing systems engineering concentration
  Traditional Industrial engineering concentration

Industrial Engineering
  MS-MBA
  Product development and manufacturing concentration

Graduate Certificate Programs
  Engineering management
  Maintenance and reliability engineering

The Departmental Graduate Committee is responsible for administering, promoting, and advancing the general well being of the graduate program. Departmental actions regarding a graduate student may be appealed in writing, first to the departmental graduate committee and then to the departmental faculty.

Admission

Applicants must first submit a formal Graduate Application for Admission. In addition to the minimum requirements of the Graduate Council, the Department of Industrial and Information Engineering requires

- Three rating forms or letters of reference.
- GRE scores.
- Essay (two double-spaced pages – contact department for current topic).

The graduate committee in the department sets any prerequisite courses or other measures that apply to the particular situation of the applicant. The department and the Office of Graduate and International Admissions must be notified of any change in the entering date after admission has been granted.

MASTER OF SCIENCE
INDUSTRIAL ENGINEERING MAJOR

Students who enroll in the Master of Science program may select a concentration in engineering management, human factors engineering, information engineering, manufacturing systems engineering, product development and manufacturing or traditional industrial engineering. Each of these concentrations, with the exception of the product development and manufacturing, allows a student to select either a thesis or non-thesis option. Students who select the manufacturing systems engineering concentration of the dual degree program must select the nonthesis option. The thesis option requires 27 hours of coursework and a 3-hour design project. The engineering management concentration requires an additional 3 hours.

INDUSTRIAL ENGINEERING CONCENTRATION

Depending upon a student’s background and career objectives, graduate work in industrial engineering enables the student to select an area of specialization from operations research, human factors engineering, information systems engineering, maintenance and reliability engineering, or general industrial engineering.

INFORMATION ENGINEERING CONCENTRATION

Information engineering is concerned with the specification, design, implementation and management of data- and knowledge-intensive information systems. The engineering of large-scale information systems requires knowledge and practical experience in areas such as database management systems, data modeling, information optimization, knowledge acquisition, data/knowledge representation, software systems engineering, and network design and management.

ENGINEERING MANAGEMENT CONCENTRATION

The engineering management concentration has an additional admission requirement of two years relevant experience as a practicing engineer or scientist. This concentration is fully supported off-campus utilizing electronic media for videotaping and interactive distance teaching methods.

HUMAN FACTORS ENGINEERING CONCENTRATION

Human factors engineering is concerned with ways of designing jobs, machines, operations, and work environments so they are compatible with human capacities and limitations. The human factors practitioner, operating within an industrial or service environment, is called upon both to apply existing human performance knowledge to the design or modification of work and workplaces and also to generate new experimental data required for system design and evaluation.

MANUFACTURING SYSTEMS ENGINEERING CONCENTRATION

Under the manufacturing systems engineering concentration, students learn strategies for improving product quality, implementing various production strategies, analysis of production planning and scheduling systems, and supplier and distribution integration. Dual degree students can select manufacturing systems engineering as an option.

PRODUCT DEVELOPMENT AND MANUFACTURING CONCENTRATION

The product development and manufacturing concentration is a non-thesis option, available only to students taking the dual MS-MBA program.

DUAL MS-MBA

Industrial Engineering Major • Manufacturing Systems Engineering or Product Development and Manufacturing Concentrations (MS-MBA)

<table>
<thead>
<tr>
<th>Period</th>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>August – First Year</td>
<td>Business Administration 511 MBA Core I</td>
<td>3</td>
</tr>
<tr>
<td>Fall – First Year</td>
<td>Business Administration 512 MBA Core II</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Industrial Engineering 504</td>
<td>1</td>
</tr>
<tr>
<td>Spring</td>
<td>Business Administration 513 MBA Core III</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Industrial Engineering 506</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Industrial Engineering 508</td>
<td>3</td>
</tr>
<tr>
<td>Summer</td>
<td>Internship</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Industrial Engineering 509</td>
<td>1</td>
</tr>
<tr>
<td>Fall – Second Year</td>
<td>Industrial Engineering 509</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Industrial Engineering Core Courses</td>
<td>9</td>
</tr>
<tr>
<td>Spring</td>
<td>MBA Hub Course Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Industrial Engineering 509</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Industrial Engineering Concentration Courses</td>
<td>9</td>
</tr>
<tr>
<td>Summer (first session)</td>
<td>Industrial Engineering 594</td>
<td>3</td>
</tr>
</tbody>
</table>

Total 60
DOCTOR OF PHILOSOPHY
INDUSTRIAL ENGINEERING MAJOR
Admission

Admission to the PhD program requires an undergraduate degree and academic background that meets the admission criteria for the master’s program in industrial engineering or a Master’s degree in industrial engineering (or a closely related field), and previous academic performance that clearly demonstrates the capacity to do original research and technical investigative work and the potential for a successful scholarly career. If admitted, prerequisites (if required) will be established by the graduate committee based on the student’s academic background. All students are required to take the Graduate Record Examinations (GRE), and submit three letters of reference and a personal statement about their professional goals. International students are also required to take the Test of English as a Foreign Language (TOEFL).

Requirements

The total program of study requires a minimum of 72 graduate hours beyond the bachelor’s degree, exclusive of credit for the master’s thesis. This includes a minimum of 36 graduate hours of coursework beyond the bachelor’s degree and 24–36 hours of doctoral research and dissertation work. For a master’s program completed at another institution or in another field, the requirement may exceed the 36 hours of coursework (other than research and dissertation) dependent on the previous program of study.

GRADUATE CERTIFICATE IN ENGINEERING MANAGEMENT

The Industrial and Information Engineering Department offers a graduate certificate in engineering management. The program is designed for professionals who work in an engineering organization and are interested in improving their technical management skills and knowledge. The program consists of four graduate courses that are available through distance education.

The 12-hour graduate certificate is earned by completing Engineering Management 533, 534, 536, and 539 with a grade of B or better. The hours may be utilized toward a graduate degree later if the student meets all other degree requirements.

Applicants must meet the minimum admission requirements and be admitted to the University of Tennessee, Knoxville, Graduate School. The only academic prerequisite for the certificate program is a bachelor’s degree from a recognized university or college.

GRADUATE CERTIFICATE IN MAINTENANCE AND RELIABILITY ENGINEERING

The College of Engineering offers a graduate certificate in maintenance and reliability engineering. The program is designed primarily for part-time students in that several of the courses are available through distance education. The 12-hour certificate is earned by completing 483 and 484, which are cross-listed among all participating departments in the College of Engineering, plus two elective courses selected from a list of courses provided by the participating departments. Currently, the available elective courses are Industrial Engineering 516 and 591, Mechanical Engineering 534 and 599, and Nuclear Engineering 579 and 585. The selection of elective courses is determined through an advising conference with each individual student, and is based on the student’s personal interests, academic background, and work experience. Applicants must meet the minimum criteria established by the Graduate Council.

DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING

http://www.engr.utk.edu/mse/

George M. Pharr, Head

Professors

Benson, R.S., PhD ................................................................. Florida State
Bhat, G.S., PhD ................................................................. Georgia Tech
Bresee, R.R., PhD .............................................................. Florida State
Collier, B.J., PhD ................................................................. Tennessee
Dahotre, N.B., PhD ............................................................. Michigan State
Egami, T., PhD ................................................................. Pennsylvania
George, E.P., PhD .............................................................. Pennsylvania
Hansen, M.G., PhD ............................................................. Wisconsin
Joy, D.C., DPhil ................................................................. Oxford (UK)
Liaw, P.K., PhD ................................................................. Northwestern
Lundin, C.D., PhD ............................................................. Rensselaer Polytechnic Institute
Mchargue, C.J., PhD ........................................................... Kentucky
Nieh, T.G., PhD ................................................................. Stanford
Pedraza, A.J., PhD ............................................................. LaPlata (Argentina)
Pharr, G.M., PhD, PE .......................................................... Cornell
Simpson, M.L., PhD ............................................................ Tennessee
Spruiell, J.E., PhD .............................................................. Tennessee
Wadsworth, L.C., PhD ........................................................ North Carolina State

Associate Professors

Kit, K., PhD ........................................................................ Delaware
Meek, T.T., PhD ................................................................. Ohio State
Morris, J.R., PhD ................................................................. Cornell
Rack, P.D., PhD ................................................................. Florida

Assistant Professors

Choo, H., PhD ................................................................. Illinois Institute of Technology
Gao, Y., PhD ................................................................. Princeton
Hu, B., PhD ................................................................. Chinese Academy of Sciences
Keppens, V., PhD .......................................................... Katholieke Universiteit Leuven (Belgium)
Law, C.J., PhD ................................................................. Arizona

Emeriti Faculty

Brooks, C.R., PhD ............................................................. Tennessee
Fellers, J.F., PhD ................................................................. Akron

MAJORS ................................................................. DEGREES

Materials Science and Engineering MS, PhD
Materials concentration
Metallurgy concentration
Polymers concentration
Textiles concentration

Materials Science and Engineering MS-MBA
Polymer Engineering
Polymer processing concentration
Polymer science concentration
Textile science concentration

Graduate programs are offered leading to the degrees of Master of Science and Doctor of Philosophy with a major in materials science and engineering or polymer engineering. Both the materials science and engineering and polymer engineering programs are flexible and interdisciplinary in nature. Students may be admitted from a wide range of disciplines. These include physics, chemistry, chemical engineering, mechanical engineering, electrical engineering, materials engineering, and engineering science programs.

The materials science and engineering concentrations offer specializations to include, but not limited to, ceramics, composites, electronic materials, physical metallurgy, materials processing, welding metallurgy and materials joining, corrosion science and engineering, biomedical materials, nonwovens science and technology, and mechanical and physical behaviors of materials.

The polymer engineering concentrations offer specialty areas in rheology; polymer morphology; mechanical, physical, and chemical behaviors of polymers; composite materials; and nonwovens science and technology.
Admission

Applicants for admission to the MS and PhD programs in materials science and engineering and polymer engineering, are expected to have completed a bachelor’s degree in an area of engineering or science with a grade-point-average of at least 3.0 out of 4.0 both overall and in the senior year. In addition, it is required all applicants submit scores from the General Graduate Record Examination (GRE). Applicants whose native language is not English must score at least 213 on the computer-based TOEFL examination, 550 on the written examination, or 80 on the Internet-based Test to be considered for admission to the programs.

MASTER OF SCIENCE
MATERIALS SCIENCE AND ENGINEERING MAJOR
POLYMER ENGINEERING MAJOR

Thesis Option

A total of 30 hours is required for the MS with a major in either materials science and engineering or polymer engineering. Additional requirements include the following.

- A major consisting of 12 hours of graduate courses in materials science and engineering or polymer engineering. The materials science and engineering major must include 511, 512, 515, and 516 for the metallurgy concentration; 511, 512, 540, and 541 for the polymers concentration; 511, 512, 540, 552, and 553 for the textiles concentration; and 511, 512, and two graduate specialization courses approved by the student’s faculty committee for the materials concentration.
- The polymer engineering major must include 540, 541, 543, 546, 549, and 550 for the polymer processing and polymer science concentrations; and 540, 541 or 543, 549, 550, 552, and 553 for the textile science concentration; exceptions are given if similar material has been covered in prior coursework.
- Additional courses up to 12 hours total in related areas.
- Master’s thesis 500, totaling 6 to 12 hours.
- Satisfactory performance on a comprehensive oral examination administered by the faculty committee.

All resident students are required to participate in the graduate seminar in materials science and engineering or polymer engineering, as appropriate, during each semester in which it is offered. Three hours of Materials Science and Engineering 503 or 504 may be counted toward degree requirements.

Non-Thesis Option

Any candidate may apply for a non-thesis option. Upon acceptance, a supervisory committee of three will be appointed. At least two members of the committee will be from the faculty in the major area, either materials science and engineering or polymer engineering. The requirements for completion of the non-thesis option are as follows.

- Completion of a total of 30 hours of graduate coursework. At least 12 of those hours must be in the department, and up to 12 hours may be in related areas. Three hours of Materials Science and Engineering 503 or 504 may be counted toward degree requirements. The materials science and engineering major and the polymer engineering major must include the same courses required for the thesis option. The faculty committee must approve the candidate’s degree program.
- Satisfactory completion of Materials Science and Engineering 580 (Critical Review) as a culminating experience. This course shall include a comprehensive examination administered by the faculty committee.

DUAL MS-MBA
Materials Science and Engineering Major

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>August – First Year</td>
<td>Business Administration 511 MBA Core I</td>
<td>3</td>
</tr>
<tr>
<td>Fall – First Year</td>
<td>Business Administration 512 MBA Core II</td>
<td>15</td>
</tr>
<tr>
<td>Spring</td>
<td>Business Administration 513 MBA Core III</td>
<td>9</td>
</tr>
<tr>
<td>Fall – Second Year</td>
<td>Mechanical Engineering 506</td>
<td>2</td>
</tr>
<tr>
<td>Spring</td>
<td>Mechanical Engineering 508</td>
<td>3</td>
</tr>
<tr>
<td>Summer</td>
<td>Internship</td>
<td>1</td>
</tr>
<tr>
<td>Materials Science and Engineering 509</td>
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<td></td>
</tr>
<tr>
<td>Departmental/Engineering Courses</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Materials Science and Engineering 594</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

1 Approved related-area courses for the MSE non-thesis Master of Science requirements.
2 Departmental/Engineering Courses must fulfill MSE non-thesis Masters of Science requirements.
3 MSE 594 is an approved substitute for MSE 580 for the dual degree program.

DOCTOR OF PHILOSOPHY
MATERIALS SCIENCE AND ENGINEERING MAJOR

POLYMER ENGINEERING MAJOR

After one year in residence and with the approval of the faculty, a student may proceed directly to the doctoral program without completion of a master’s degree.

Requirements

Departmental requirements for completion of the doctoral degree are as follows.

- For students proceeding directly to the PhD from the baccalaureate degree, a minimum of 72 graduate hours is required. These hours must include 42 graduate course hours with at least 6 hours of 600-level courses and 30 hours of dissertation. Six hours of Materials Science and Engineering 503 or 504 may be counted toward degree requirements. At least 24 hours must be courses taught in the department. The materials science and engineering major and the polymer engineering major must include the courses required for the master’s program. In addition, for students in the textile science concentration of the polymer engineering major, the courses must include 541 and 543.
- For students having a thesis-based master’s degree from UT in materials science and engineering or polymer engineering or a master’s degree from another university in departmental science and engineering, polymer engineering, or metallurgical engineering, a minimum of 48 graduate hours is required. These hours must include 18 hours of graduate coursework with at least 6 hours of 600-level courses and 30 hours of dissertation. Three hours of Materials Science and Engineering 503 or 504 may be counted toward degree requirements. At least 12 hours must be courses in the department.
DEPARTMENT OF MECHANICAL, AEROSPACE, AND BIOMEDICAL ENGINEERING

http://www.engr.utk.edu/mabe/

William R. Hamel, Head
Gary V. Smith, Graduate Liaison

Professors
Armilli, R.V., PhD ........................................ Virginia Tech
Baker, A.J., PhD, PE ....................................... New York
Dareing, D.W., PhD, PE ................................ Illinois
Frankel, J.I., PhD ........................................ Virginia Tech
Hamel, W.R., PhD ........................................ Tennessee
Jendrucko, R.J., PhD, PE ................................ Virginia
Johnson, W.S., PhD, PE .................................. Clemson
Keyhani, M., PhD ........................................ Ohio State
Kihn, K.D., PhD ........................................... Stanford
Komistek, R.D., PhD ..................................... Memphis
Landes, J.D., PhD, PE .................................... Lehigh
Milligan, M.W., PhD, PE ................................ Tennessee
Parang, M. (Associate Dean), PhD, PE ............... Oklahoma
Parsons, J.R., PhD, PE ................................... North Carolina State
Smith, G.V., PhD, PE .................................... Penn State
Soliman, O., PhD, PE ..................................... Tennessee
Wasserman, J.F., PhD, PE ................................. Cincinnati
Weitsman, Y.J. (Distinguished Professor), PhD ........ Rensselaer Polytechnic Institute

Associate Professors
Boulet, J.A.M., PhD ..................................... Stanford
Chellaboina, V.S., PhD ................................. Georgia Tech
Lumsdaine, A., PhD ...................................... Michigan
Lyne, J.E., M.D., PhD ................................. North Carolina State
Madhukar, M.S., PhD ............................... Drexel
Nguyen, K., PhD ......................................... Colorado
Pionke, C.D., PhD, PE ................................. Georgia Tech

Assistant Professors
DeSmitid, H.A., PhD ................................ Penn State
English, A., PhD ........................................ Harvard-MIT
Karpov, E.G., PhD .................................... Southampton (UK)
Lee, D., PhD ........................................ Minnesota
Mahfouz, M.R., PhD .................................. Colorado School of Mines

Emeriti Faculty
Carley, T.G., PhD, PE ................................... Illinois
Forrester, J.H., PhD, PE ............................. Iowa State
Hodgson, J., PhD, PE ................................. Georgia Tech
Mathews, A., PhD ....................................... Georgia Tech
Shannon, T.E., PhD, PE .............................. Tennessee
Snyder, W.T., PhD .................................... Northwestern
Speckhart, F.H., PhD, PE ............................. Georgia Tech

MAJORS

Aerospace Engineering
Aeroacoustics concentration
Aerodynamics and performance concentration
Energy conversion and utilization concentration
Flight and aerospace mechanics concentration
Gas dynamics concentration
Heat transfer and fluid mechanics concentration
Propulsion concentration
Space engineering concentration
Structures and stress analysis concentration
Thermodynamics concentration

Biomedical Engineering
Biofluid mechanics concentration
Bioimaging concentration
Biomaterials concentration
Cell and tissue engineering concentration
Musculoskeletal biomechanics concentration

Biomedical Engineering

Engineering Science

Mechanical Engineering

Mechanical Engineering

Graduate Certificate Programs
Computational Fluid Mechanics
Maintenance and Reliability Engineering

Graduate programs leading to the Master of Science and Doctor of Philosophy are available with majors in mechanical engineering, aerospace engineering, biomedical engineering, and engineering science. Changing from one of these programs to another requires departmental approval. Each applicant is advised as to any prerequisite courses before entering a program. A dual MS-MBA program with a concentration in product development and manufacturing is also available with a major in mechanical engineering or in engineering science.

Within the engineering science concentrations interdisciplinary programs are arranged to meet individual needs or interests. The flexibility and interdisciplinary aspect of the program concentrations are intended to be of particular interest to prospective students currently employed in research, development, or design activities and whose interests in continuing education (either full-time or part-time) lie at one of the interfaces between science and engineering or can best be met by interdisciplinary study in engineering. The program’s course offerings and research activities are also intended to meet the needs of stu-
Meadows who seek preparation for employment in engineering areas requiring specialization in mechanics or in related interdisciplinary studies such as bio-mechanics.

In mechanical engineering or aerospace engineering, entrance into the Master of Science program is available to qualified graduates of recognized undergraduate curricula in mechanical or aerospace engineering and to qualified graduates of other curricula who satisfy the necessary prerequisites. A program application is required in addition to the Graduate Application for Admission. Admission into the doctoral program will be granted to those applicants who have demonstrated superior achievement in their engineering backgrounds. The general GRE is required of all applicants for admission.

In biomedical engineering, entrance into the graduate program is available to graduates of recognized curricula in engineering, mathematics, or one of the physical or biological sciences. A program application is required in addition to the Graduate Application for Admission. The names and addresses of four references must be included with the program application. The general GRE is required of all applicants for admission.

In engineering science, entrance into the graduate program is available to graduates of recognized curricula in engineering, mathematics, or one of the physical or biological sciences. A program application is required in addition to the Graduate Application for Admission. The names and addresses of four references must be included with the program application. The general GRE is required of all applicants for admission.

Each student must satisfactorily complete a program of study that has been approved by his/her advisory committee and complies with the requirements of the Graduate Council. In engineering science, the student's major professor may be selected from a department other than the Department of Mechanical, Aerospace, and Biomedical Engineering; however, at least one member of the student's graduate advisory committee must be on the faculty of the Department of Mechanical, Aerospace, and Biomedical Engineering.

Graduate Credit for Undergraduate Courses

Students majoring in mechanical engineering or aerospace engineering may not normally use more than one 400-level engineering course to meet their advanced degree requirements. Undergraduate courses that are required for the bachelor's degree in engineering may not be taken for graduate credit by graduate students in mechanical engineering. Undergraduate courses that are required for the bachelor's degree in aerospace engineering may not be taken for graduate credit by graduate students in aerospace engineering. For students majoring in engineering science, 400-level graduate courses in engineering may be used to meet requirements at the discretion of the advising committee. However, at least two-thirds of the minimum required hours in a master's degree program must be at or above the 500-level. With the approval of the student's major department, a student whose major is outside the Department of Mechanical, Aerospace, and Biomedical Engineering may take 400-level graduate courses in the department. Such students should consult with instructors regarding prerequisites for undergraduate courses.

MASTER OF SCIENCE

AEROSPACE ENGINEERING MAJOR

MECHANICAL ENGINEERING MAJOR

ENGINEERING SCIENCE MAJOR

BIOMEDICAL ENGINEERING MAJOR

Requirements

In aerospace engineering, mechanical engineering, biomedical engineering, and engineering science, two MS options are offered. Option I requires a thesis and is the normal program for graduate students. Option II does not require a thesis and provides graduate students, including co-op and other off-campus students, the opportunity to focus their programs in special areas through extended coursework.

Aerospace Engineering Major • Mechanical Engineering Major • Option I (Thesis)

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Coursework total</td>
</tr>
<tr>
<td>Thesis</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

1 Courses in program (500-level or above) – 12 hours minimum. Mathematics (400-level or above) – 6 hours minimum.

Aerospace Engineering Major • Option II (Non-Thesis)

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Coursework total</td>
</tr>
<tr>
<td>590 Selected Engineering Problems</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

1 Courses in program (500-level or above) – 18 hours minimum. Mathematics (400-level or above) – 6 hours minimum.

Biomedical Engineering Major • Option I (Thesis)

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Coursework total</td>
</tr>
<tr>
<td>Thesis</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

1 Engineering courses – 12 hours minimum. Mathematics (400-level or above) – 6 hours minimum. Related courses – 6 hours.

Biomedical Engineering Major • Option II (Non-Thesis)

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Coursework total</td>
</tr>
<tr>
<td>590 Selected Engineering Problems</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

1 Engineering courses – 15 hours minimum. Mathematics (400-level or above) – 6 hours minimum.

2 May include additional courses in mathematics, computer science, or the physical and life sciences, as well as engineering courses.

Engineering Science Major • Option I (Thesis)

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Coursework total</td>
</tr>
<tr>
<td>Thesis</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

1 Engineering courses – 12 hours minimum (major concentration may include, but is not restricted to, courses offered by the department). Mathematics (400-level or above) – 6 hours minimum. Related courses – 6 hours maximum (may include additional courses in mathematics, computer science, or the physical and life sciences).
Engineering Science Major • Option II (Non-Thesis)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selected Engineering Problems</td>
<td>6</td>
</tr>
<tr>
<td>Mechanical Engineering 594</td>
<td>3</td>
</tr>
</tbody>
</table>

Total 30

1 Engineering courses – 15 hours minimum (major concentration may include, but is not restricted to, courses offered by the department). Mathematics (400-level or above) – 6 hours minimum. Related courses – 9 hours maximum (may include additional courses in mathematics, computer science, or the physical and life sciences).

For all program options, other 500-level engineering courses that are approved by the student’s master’s committee and the graduate programs committee may be substituted for the mathematics courses. All program options require participation in the departmental graduate seminars program, and passing a final examination on all work submitted for the degree. The final examinations in Option II (non-thesis) will cover all coursework. The thesis option, Option I, requires submission and defense of a written thesis that demonstrates the ability to conduct and report an independent investigation.

DUAL MS-MBA

Aerospace Engineering MBA Major

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Administration 511 MBA Core I</td>
<td>3</td>
</tr>
<tr>
<td>Mechanical Engineering 504</td>
<td>1</td>
</tr>
<tr>
<td>Business Administration 512 MBA Core II</td>
<td>15</td>
</tr>
<tr>
<td>Mechanical Engineering 508</td>
<td>3</td>
</tr>
<tr>
<td>Mechanical Engineering 509</td>
<td>1</td>
</tr>
<tr>
<td>Aerospace Engineering 509</td>
<td>1</td>
</tr>
<tr>
<td>MBA Hub Course Elective</td>
<td>3</td>
</tr>
<tr>
<td>Departmental/Engineering Courses</td>
<td>9</td>
</tr>
</tbody>
</table>

Total 60

Biomedical Engineering (MS-MBA)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Administration 511 MBA Core I</td>
<td>3</td>
</tr>
<tr>
<td>Mechanical Engineering 504</td>
<td>1</td>
</tr>
<tr>
<td>Business Administration 512 MBA Core II</td>
<td>15</td>
</tr>
<tr>
<td>Mechanical Engineering 508</td>
<td>2</td>
</tr>
<tr>
<td>Mechanical Engineering 509</td>
<td>3</td>
</tr>
<tr>
<td>Aerospace Engineering 509</td>
<td>1</td>
</tr>
<tr>
<td>MBA Hub Course Elective</td>
<td>3</td>
</tr>
<tr>
<td>Departmental/Engineering Courses</td>
<td>9</td>
</tr>
</tbody>
</table>

Total 60

Mechanical Engineering Major

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Administration 511 MBA Core I</td>
<td>3</td>
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<tr>
<td>Mechanical Engineering 504</td>
<td>1</td>
</tr>
<tr>
<td>Business Administration 512 MBA Core II</td>
<td>15</td>
</tr>
<tr>
<td>Mechanical Engineering 508</td>
<td>2</td>
</tr>
<tr>
<td>Mechanical Engineering 509</td>
<td>3</td>
</tr>
<tr>
<td>Aerospace Engineering 509</td>
<td>1</td>
</tr>
<tr>
<td>MBA Hub Course Elective</td>
<td>3</td>
</tr>
<tr>
<td>Departmental/Engineering Courses</td>
<td>9</td>
</tr>
</tbody>
</table>

Total 60

Engineering Science Major

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Departmental/Engineering Courses</td>
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</tbody>
</table>

Total 60

Summer (first session)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Engineering 594</td>
<td>3</td>
</tr>
</tbody>
</table>

Total 60

Dual degree candidates enrolled in engineering science are required to take 18 hours of graduate-level engineering courses during the second year of the program. This program requires a coursework plan, approved by the Dual Program Committee, including a concentration such that the student can accomplish his/her teamwork assignments.
DOCTOR OF PHILOSOPHY
AEROSPACE ENGINEERING MAJOR
BIOMEDICAL ENGINEERING MAJOR
ENGINEERING SCIENCE MAJOR
MECHANICAL ENGINEERING MAJOR

Requirements

All students must complete a minimum of 72 semester hours beyond the bachelor's degree, exclusive of credit for the master's thesis. These shall include a minimum of 24 hours in Doctoral Research and Dissertation and a minimum of 48 semester hours in other courses.

In mechanical engineering, aerospace engineering, or biomedical engineering, the courses must include the following.

- A minimum of 12 semester hours of graduate credit in mathematics courses numbered 400 or above with a minimum of 6 hours numbered 500 or above.
- A minimum of 24 semester hours in the department in courses numbered 500 and above, with at least 12 of these hours in the major. A minimum of 9 semester hours of courses is required at the 600 level. These are exclusive of thesis, problems, or dissertation credit. The student's advisory committee can approve a student's petition to replace one 600-level course with one or more 500-level course(s) that are more appropriate.

In engineering science, the courses must include the following.

- A minimum of 24 semester hours in graduate engineering courses, exclusive of thesis and dissertation credit. These courses will normally be numbered 500 and above, with at least 9 semester hours of 600-level courses, which constitute one or two areas of concentration selected by the student. The number of courses in this group to be taken will depend on the program selected by the student and the approval of his/her advisory committee.
- A minimum of 12 semester hours in mathematics or computer science in courses numbered 400 and above, exclusive of a first course in ordinary differential equations.

Additional requirements for all students include the following.

- Registration and participation in the graduate seminar in the major program.
- Meet all departmental examination requirements, which include passing a written and oral comprehensive examination.
- Presentation of a dissertation proposal to the student's advisory committee and approval of that proposal by that committee.
- Successful defense of the dissertation.

GRADUATE CERTIFICATE IN COMPUTATIONAL FLUID DYNAMICS

The College of Engineering offers a graduate certificate in computational fluid dynamics (CFD). The program is designed primarily for the part-time student interested in gaining dexterity in this subject by taking a course sequence through distance education. All coursework is permanently archived at the College of Engineering Computational Fluid Dynamics Laboratory Web site, hence available on demand on a totally flexible schedule.

The 12-hour certificate is earned by completing the three courses, Engineering Science 551, 552, and 581 (CFD Laboratory), which are extensively cross-listed among departments in the College of Engineering. The certificate is completed with one elective 3-hour course from an approved list. Those currently approved are Chemical Engineering 507 and Electrical and Computer Engineering 599 (Computer Fire Modeling). A wider selection of courses will be added when they become available.

The sole academic prerequisite for the certificate program is a bachelor's degree in engineering. Applicants must meet the minimum admission requirements of the University of Tennessee, Knoxville, Graduate and International Admissions Office and become admitted thereto.

GRADUATE CERTIFICATE IN MAINTENANCE AND RELIABILITY ENGINEERING

The College of Engineering offers a graduate certificate in maintenance and reliability engineering. The program is designed primarily for part-time students in that several of the courses are available through distance education.

The 12-hour certificate is earned by completing 483 and 484, which are cross-listed among all participating departments in the College of Engineering, plus two elective courses selected from a list of courses provided by the participating departments. Currently, the available elective courses are Industrial Engineering 516 and 591, Mechanical Engineering 534 and 591, and Nuclear Engineering 579 and 585. The selection of elective courses is determined through an advising conference with each individual student, and is based on the student's personal interests, academic background, and work experience. Applicants must meet the minimum criteria established by the Graduate Council.

DEPARTMENT OF NUCLEAR ENGINEERING

http://www.engr.utk.edu/nuclear/

H. L. Dodds, Head and Graduate Liaison

Professors
Dodds, H.L. (IBM Professor), PhD, PE ............................ Tennessee
Fontana, M.H. (Research), PhD, PE ................................. Purdue
Grossbeck, M.L. (Research), PhD ................................. Illinois
Hines, J.W., MBA, PhD ........................................... Ohio State
Mihalco, J.T. (Research), PhD ................................. Tennessee
Miller, L.F., PhD, PE ............................................ Texas A&M
Mynatt, F.R. (Research), PhD ................................. Tennessee
Pettengill, H.J. (Research), PhD ................................. Michigan
Ruggles, A.E., PhD .............................................. Rensselaer Polytechnic Institute
Townsend, L.W., PhD ................................. Idaho
Upadhyaya, B.R., PhD, PE ................................. California (San Diego)

Associate Professors
Pevey, R.E., MBA (Emory), PhD, PE ............................ Tennessee
Scott, T.H., PhD, PE ................................. Florida

Assistant Professors
Grobak, A.V. (Research), PhD ................................. IPPE (Russia)
Moussa, H.M. (Research), PhD ................................. Tennessee
Stephan, A.C. (Research), PhD ................................. Tennessee

Adjunct Faculty
DeHart, M.D., PhD ................................. Texas A&M
Gehin, J.C., PhD ................................. Massachusetts Institute of Technology
Icenhour, A.S., PhD ................................. Tennessee
Nichols, T.L., MD ................................. Tennessee
Ramsey, C.R., PhD ................................. Tennessee

Emeriti Faculty
Groer, P.G., PhD ................................. Vienna (Austria)
Uhrig, R.E. (Distinguished Professor), PhD, PE ............................ Iowa State

MAJOR DEGREES

Nuclear Engineering
Radiological engineering concentration

Nuclear Engineering
MS/ MBA

Graduate Certificate Programs
Maintenance and Reliability Engineering
Nuclear Criticality Safety

The Department of Nuclear Engineering offers programs leading to the Master of Science and Doctor of Philosophy degrees. Students may elect a traditional nuclear engineering program focusing on fission energy or fusion energy or a radiological engi-
neering concentration, which prepares students for careers in the radiation safety field (health physics). Both programs are designed for graduates of accredited undergraduate programs in engineering, physics, chemistry, biology, or mathematics.

All entering students must have, as a minimum, competency in mathematics through ordinary differential equations, competency in atomic and nuclear physics, and competency consistent with an introductory course in nuclear engineering. If such competencies do not exist, the student must take appropriate courses for undergraduate credit. In addition, students without a BS in nuclear engineering, or the equivalent, must take 431 (Radiation Protection) and 470 (Nuclear Reactor Theory I), both of which may be taken for graduate credit. The department head is the contact for all interested students, both those with nuclear engineering degrees and those from other disciplines.

Graduate Credit for Undergraduate Courses

400-level courses in nuclear engineering may be used for graduate credit. However, at least two-thirds of the minimum required hours in the MS must be taken in courses numbered 500 or above.

MASTER OF SCIENCE
NUCLEAR ENGINEERING MAJOR

A graduate program leading to the Master of Science degree is available to graduates of recognized undergraduate curricula as described above. Each applicant will be advised as to the necessary prerequisite courses before he/she enters the program.

Requirements

The minimum requirements for the MS in nuclear engineering are

- A major consisting of 12 hours of graduate courses in nuclear engineering which must include at least one of the following sequences – 511, 512; 521, 522; 551, 552; 571, 572; 581, 582.
- A minor consisting of 6 hours of elective courses in mathematics or statistics.
- 6 hours in either nuclear engineering or a related field.
- One of the following three options for a culminating experience.
  - Option 1 – a thesis project (6 hours of 500).
  - Option 2 – two to four engineering practice projects (6 hours of 598).
  - Option 3 – one engineering practice project (3 hours of 598) plus 6 hours of additional nuclear engineering coursework.

Options 1 and 2 result in a minimum total of 30 hours and Option 3 results in a minimum total of 33 hours. The determination of which option a student may undertake is made by the student’s graduate committee and is based on the student’s personal interests, academic background, and work experience, as well as the nature of projects currently available in the department.

A thesis project requires the student to conduct independent, in-depth research. An engineering practice project is similar to a thesis project but smaller in scope and can be research, design, product development, special operations, or a critical review of published literature in a specific technical area. The student must submit a brief written proposal for each project undertaken, either thesis or engineering practice, which must be approved by the student’s graduate committee. The final report for an engineering practice project is normally prepared in thesis format (i.e., according to the Office of Graduate Student Services, Guide to the Preparation of Theses and Dissertations); however, another formal report format may be used if approved by the student’s graduate committee. The student must also register for the appropriate number of hours of either 500 or 598, as specified by the student’s major professor, during each semester that work is performed on a thesis or engineering practice project. Finally, the student must pass an oral examination on all work presented for the degree (all coursework and all projects).

The MS with a major in nuclear engineering is also available to distance students via selected courses that are delivered synchronously over the Web to the student’s computer. More detailed information about this distance program is located at http://www.anywhere.tennessee.edu/ne/default.htm.

DUAL MS-MBA

The College of Business Administration and the College of Engineering offer an integrated program in product development and manufacturing leading to the conferral of the Master of Business Administration degree and the Master of Science degree with a major in nuclear engineering. The establishment of the dual program addresses the critical need for personnel trained in both engineering and management who can integrate an increasingly complex body of knowledge for rapid introduction of new products to the marketplace. The objective of the dual degree program is to prepare graduates to take a leading management role in companies that must react quickly to a dynamic market where forces of competition require rapid changes in design and manufacturing and a short product development cycle.

Admission

Applications are accepted for fall semester only. Applicants for the MS-MBA program must make separate application to, and be competitively and independently accepted by the Office of Graduate and International Admissions for the Master of Business Administration program and the Master of Science program with a major in nuclear engineering, and by the Dual Program Committee.

Students will initially apply for the MBA program, indicating on their application the intent to pursue the dual MS-MBA program and the appropriate engineering major (refer to the MBA program for separate instructions). Students accepted for both the MBA and the MS with a major in nuclear engineering will be assigned to a Dual Program Committee advisor (a faculty member in nuclear engineering) who will be responsible for course approval and overall supervision of the students’ progress through the dual program.

Applications by United States citizens and permanent residents received after the MBA application deadline (March 1) will be considered as space allows. Additional information is required and different application dates are established by the Office of Graduate and International Admissions for international students.

Requirements

All engineering students enrolled in the product development and manufacturing program must complete common coursework designed to provide them with an integrated, multidisciplinary teamwork experience. The MBA curriculum in product development and manufacturing consists of 33 hours of common coursework in the College of Business Administration and 15 hours of common coursework in the College of Engineering. Engineering common coursework includes a culminating 3-hour integrated project course requiring a comprehensive report, and a final examination as required by the Dual Program Committee, to be taken during the first session of summer following the second year.

During the second year, dual degree candidates will also take courses in their engineering major. The coursework is designed to provide students with a concentration in their major and advanced skills to accomplish their teamwork assignments. Dual degree candidates enrolled in nuclear engineering are required to take 18 hours of graduate-level nuclear engineering courses during the second year of the program, which must be approved.