The University of Tennessee began as a liberal arts institution. Before the turn of the century, less emphasis was placed on the liberal education. However, the liberal arts continued to thrive, emerging as a college in 1904. Thus, the College of Liberal Arts (now known as the College of Arts and Sciences) is one of the oldest established colleges in the university.

The College of Arts and Sciences consists of a wide array of academic disciplines and interdisciplinary programs. The central purposes of a liberal education include the encouragement of intellectual tolerance, a dedication to the quest for knowledge as a worthwhile goal in and of itself, and the cultivation of a responsible, creative individual mind. These qualities enable one to develop an ability to reason and to express oneself clearly, an incentive to absorb emerging knowledge, and a competence to confront the uncertainties of human experience. Faculty research
and creative activity is the foundation on which education in this college is built. As a result of that endeavor, the lives of students are enriched and the world’s body of knowledge grows.

The College of Arts and Sciences offers programs in twenty-seven academic disciplines leading to nine advanced degrees: Doctor of Audiology, Doctor of Philosophy, Master of Arts, Master of Fine Arts, Master of Mathematics, Master of Music, Master of Public Administration, Master of Science, Master of Science in Planning.

**General Information**

**Foreign Study Courses**

Foreign study courses offered in some departments of the college provide an opportunity to undertake independent study outside the United States. Prior to departure the student must have a plan of study approved by the department head and a supervising faculty member of the department concerned. Credit will be given only upon fulfilling all requirements set by the department and may vary from 1-15 hours. The maximum credit that may be applied toward a degree in the college is established in each individual case by the department in which the student is working.

**Off-Campus Study**

Recognizing that learning is not restricted to formal classroom situations, the college allows students to earn credit toward graduation for approved off-campus study. Such study may be undertaken only with prior approval of the faculty member and the department concerned. It may include certain kinds of work experiences, community involvement, or political campaigns. Credit per semester will vary from 1-15 hours. The maximum credit that may be applied toward a degree in the college is established in each individual case by the department in which the student is working.

**Independent Study**

Certain educational goals may best be met through independent study by an individual under the direction of a faculty member. Students who wish to do such independent work should obtain the approval of the faculty members and the departments concerned prior to embarking upon their study. Credit per semester will vary from 1-15 hours. The maximum credit which may be applied toward a degree in the college is established in each individual case by the department in which the student is working.

**Department of ANTHROPOLOGY**

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

**Professors**

Bass, W.M. (Alumni Distinguished Service Professor), PhD ..........................................Pennsylvania
Faulkner, C.H. (Distinguished Professor), PhD ...........................................Indiana
Harrison, F.V., PhD ...........................................................................Stanford
Howell, B.J., PhD ...........................................................................Kentucky
Jantz, R.L., PhD ...........................................................................Kansas
Klippel, W.E., PhD ...........................................................................Missouri
Konigsberg, L., PhD ...........................................................................Northwestern
Logan, M.H., PhD ...........................................................................Penn State
Schroedl, G.F., PhD ........................................................................Washington State
Simek, J.F. (Distinguished Professor), PhD ...........................................State University of New York (Binghamton)

**Associate Professors**

Anderson, D.G., PhD ...........................................................................Michigan
Kramer, A., PhD ...........................................................................Michigan
Marks, M., PhD ...........................................................................Tennessee

**Assistant Professor**

Qirko, H.N., PhD ...........................................................................Tennessee

**Research Director**

Driskell, B.N., PhD ...........................................................................Kentucky

**Research Associate Professor:**

Chapman, J. (Director, F.H. McClung Museum), PhD .........................North Carolina

**Research Assistant Professor and Curator**

Frankenberg, S., PhD ...........................................................................Northwestern

**Research Assistant Professors**

Ahlman, T.M., PhD ...........................................................................Tennessee
Elam, M., PhD ...........................................................................Missouri
Herrmann, N.P., PhD ...........................................................................Tennessee
Sherwood, S., PhD ...........................................................................Tennessee

**Lecturer and Coordinator, Forensic Center**

Jantz, L.M., PhD ...........................................................................Tennessee

**Lecturer**

McKeown, A.H., PhD ...........................................................................Tennessee

**Adjunct Faculty**

Dunnell, R., PhD ...........................................................................Yale
Sullivan, L.P., PhD ...........................................................................Wisconsin (Milwaukee)

**MAJOR DEGREES**

Anthropology ..................................................................................MA, PhD

**The Department of Anthropology offers both the MA and PhD with a major in anthropology and concentrations in archeology, biological anthropology, cultural anthropology, and zooarcheology. A concentration in Mediterranean archeology is available on the master's level. Additional information on the anthropology graduate program may be obtained from the departmental brochure or by contacting the department.**

**MASTER OF ARTS**

**Anthropology Major**

**ADMISSION**

Students wishing to enter the Master of Arts program with a major in anthropology should have an undergraduate GPA of 3.5 in the major, 3.3 overall, and hold a bachelor’s degree from an accredited university with a major in anthropology. Applicants with a major in a related field (biology, sociology, geology, classics or geography) will be considered only if they have a formal minor in anthropology or its equivalent (at least five upper-division anthropology courses).

In cooperation with the Classics and History Departments, the Department of Anthropology is able to offer a concentration in Mediterranean archeology. Students who apply in this area should have completed appropriate undergraduate courses in archeology or anthropology. An anthropology minor is preferred.

All prospective MA students must make formal application to the University of Tennessee, Knoxville, Graduate Admissions. Copies of the application form, transcripts, and GRE scores that
are sent to Graduate Admissions should also be sent directly to the Department of Anthropology at the same time. In addition, the department requires a letter of intent from the applicant indicating career goals and reasons for selecting the University of Tennessee, Knoxville, three letters of recommendation, and one sample of the prospective student’s written work (a class paper or research report); these materials should be sent directly to the Graduate Secretary, Department of Anthropology, South Stadium Hall 250, the University of Tennessee, Knoxville, Tennessee 37996-0720.

Graduate applications are considered once a year by the Graduate Committee. All application materials must be received in the department by January 15 for admission the following fall. Because of the structure of first-year studies, MA students should plan to begin their studies in the fall semester.

**REQUIREMENTS**

The program leading to the MA is a general curriculum that allows for concentration after completion of a core course sequence. Formal requirements include:

- **Selection of an MA advisor.** This should be done as soon as possible in the student’s program but must be done no later than the end of the first semester in residence. The department graduate secretary must be informed in writing of each student’s advisor.
- **A minimum of 30 credit hours in graduate courses.** Twenty-four hours must be in coursework graded A-F. Coursework must include three core classes taken in the first year:
  a. **510 Method and Theory in Cultural Anthropology**
  b. **560 Theory in Archaeology**
  c. **590 Method and Theory in Biological Anthropology**

Additional coursework should be selected in consultation with the student’s advisor and must include one additional course from two anthropology concentrations besides the student’s primary concentration. At least 20 hours of coursework must be at the 500 level or higher. Students concentrating in Mediterranean archaeology, in consultation with their advisor, should select their additional 18 hours from courses offered in the Anthropology, History, or Classics departments.

- **During the first year, comprehensive Graduate Evaluation Examinations (GEEs) are required of all MA students and are based on the content of the core courses. These examinations are given during regularly-scheduled final periods in each core class and are graded by all faculty within the appropriate sub discipline for each course. At the end of the first year, all MA students will be evaluated by the entire faculty and will either be retained or dropped from the program based on their first year’s performance and GEE scores.**
- **All MA students must attend the graduate section of the visiting lecturer program. To insure compliance with this requirement, each student is required to register for one credit hour of Anthropology 550 in the fall semester of each year and fulfill all requirements for the course as defined by the instructor. Materials covered by visiting lecturers may appear on the GEE.**

- **A graduate-level introductory statistics course, usually Statistics 537.**
- **In the second year of the program, students pursue their concentration area and undertake thesis research. Coursework will be determined through consultation with the student’s advisor and committee (composed of the advisor and at least one other member of the anthropology faculty along with other mutually-agreed upon members).**
- **Successful completion of the thesis and final oral examination. Normally, students will complete and defend their theses during the spring semester of their second year.**
- **Two copies of the thesis are required by the Office of Graduate Student Services. In addition, bound copies of the thesis are to be provided to the department and to all members of the student’s MA committee.**

In addition to the requirements listed above, MA students have the option of completing a minor in statistics. The statistics minor requires 9 hours of coursework, normally Statistics 537 and 538 plus one additional course from an approved list.

**DOCTOR OF PHILOSOPHY**

**Anthropology Major**

In addition to the Graduate Council requirements, requirements for the PhD with a major in anthropology, in the appropriate sequence of completion, are as follows:

**ADMISSION**

Admission to the PhD program is contingent upon completion of all requirements prior to that level. Master’s thesis candidates at the University of Tennessee, Knoxville, who are conditionally accepted into the PhD program can enroll as doctoral students the semester following conferral of the MA. Students holding master’s degrees from other institutions must apply by January 15 for admission the following fall and must begin their studies in the fall semester.

Admission to the PhD program is based upon the applicant’s academic record and credentials, but also on fit between an individual’s interest and faculty areas of research. Applicants will not be admitted to the PhD program unless appropriate faculty members are available to chair and serve on the doctoral committee. Doctoral program applicants should communicate directly with the potential chairperson and two additional members of the anthropology faculty who will be asked to serve on the committee.

Applicants to the PhD program should meet the same academic standards as MA program applicants and furnish the same materials (see Admission under Master of Arts). Admission to the program requires either:

- **Acceptance of a master’s in anthropology; or**
- **Acceptance of a master’s in another discipline, with the provision that the student will follow the first-year program with entering MA students, i.e., complete the core courses (510, 560, 590) and pass the Graduate Evaluation Examinations.**
REQUIREMENTS

Doctoral Committee

A doctoral committee is appointed following admission to the program. In consultation with this committee, the student defines the future program of studies. When the student and committee have agreed upon the specific fields of specialized competence over which the student will be examined, a brief delineation of the fields by the student, approved by the members of the committee, is presented to the department head and the student’s major professor. As early as possible, but no later than a full semester after admission to candidacy, the student shall formally present a written dissertation proposal to the department head and advisor.

Residence and Coursework

Every potential PhD candidate must complete two consecutive semesters of full-time residence prior to taking the doctoral comprehensive examination. The student must complete the minimum coursework requirements of the Graduate Council, including at least nine hours of 500- or 600-level courses outside of anthropology, chosen in consultation with the doctoral committee, particularly the outside member who represents the cognate area. Outside coursework may be taken in a single discipline or be distributed across two or more disciplines as appropriate to the individual’s program of study.

Statistics

Demonstration of competence in statistics by completing Statistics 537 and 538 with a grade of B or better is required.

Language

Students must demonstrate knowledge of one foreign language. This language should normally be French, German, Russian or Spanish, but another language may be substituted at the committee’s discretion. This requirement may be met by either:

- Successful performance on a language examination administered by the appropriate language department. A student electing this alternative should consult with the advisor; or
- Completion of the second semester of specialized reading courses for graduate students with a grade of B or better.

The department does not accept completion of the intermediate (200 level) sequence of a language as a formal option for fulfilling the language requirement.

Doctoral Comprehensive Examination

Students must successfully complete a written and oral comprehensive exam.

- Comprehensive Written Examination: When the PhD aspirant has completed all of the foregoing requirements and is judged by the committee to be prepared in the field(s) of concentration, the student will be required to take a comprehensive written examination. The exam will consist of three sections and be given by the student’s committee. All three sections must be taken within seven consecutive days.

- Comprehensive Oral Examination: This examination follows shortly after successful completion of the comprehensive written exam. The major professor acts as chairperson of the committee.

Admission to Candidacy

Upon successful completion of the comprehensive exam and with the formal approval of the Dean of Graduate Studies, the student is admitted to candidacy for the PhD degree. The formal dissertation prospectus must be filed no later than one full semester after advancement to candidacy.

Dissertation Research

This period of research and writing will be under the direct guidance of the candidate’s major professor. The major professor will act as chairperson of the candidate’s committee. The candidate must earn a minimum of 24 hours in Anthropology 600 and maintain continuous registration until the dissertation is accepted. The option of presenting publishable papers as a dissertation is not a formal option for the Anthropology Department.

Defense of Dissertation Examination

When the dissertation has been tentatively accepted by the committee, a final oral examination will be held. The committee conducts the exam, which is ordinarily held as a colloquium in which the candidate will expound on the nature and significance of his/her contribution to anthropological knowledge as set forth in the dissertation.

GRADUATE COURSES

Anthropology (122)

410 Principles of Cultural Anthropology (3) Exploration and illustration of major concepts, theories, and methods in cultural anthropology, with application to analysis of specific ethnographies. Prereq: 130.

411 Linguistic Anthropology (3) Basic linguistic concepts applied to research in cultural anthropology: investigation of relationships between language and culture. Prereq: 130 or Linguistics 200. (Same as Linguistics 411.)

412 Folklore in Anthropology (3) Introduction to anthropological study of folklore, using folklore and folk life materials from various tribal, peasant, and complex societies. Prereq: 130 or consent of instructor.

413 Dynamics of Culture (3) Major forms of culture change, ranging from evolution and diffusion to religious revitalization and political revolt. Continuity and change in diverse cultural settings through use of archaeological, ethnohistoric, and contemporary cases. Prereq: 130 or consent of instructor.

414 Political Anthropology (3) Organization and dynamics of power and politics in both stateless and state-level societies. Role of symbols, rituals, and ideologies in producing and reproducing power relations. Relationship between actors (individuals) and structures. Encapsulation of traditional political forms and systems within modern states. Prereq: 130 or consent of instructor.

416 Applied Anthropology (3) Introduction to principles, practice and ethics of anthropology applied to practical problems in non-academic settings. Overview of career opportunities in various domains of applied anthropology. Prereq: 130 or consent of instructor.

431 Ethnographic Research (3) Conceptual and practical exploration of methods and techniques cultural anthropologists use in fieldwork. Prereq: 130 or consent of instructor.

435 Historical Archaeology Laboratory (3) Laboratory procedures for processing, identification, and interpretation of artifacts from historical sites. Artifactual material from historic East Tennessee sites used for class projects. Recommended prereq: 361.

436 Cities and Sanctuaries of the Greek and Roman World (3) (Same as Classics 436.)

440 Cultural Ecology (3) Concepts and methods in studying dynamic interaction between prehistoric and present day cultures and their environments: ecological theory, methods of analysis, and review of selected case studies. Prereq: 120, 130, 410, or consent of instructor.
COLLEGE OF ARTS AND SCIENCES

542 Intensive Survey of the Archaeology of the Prehistoric Aegean (3)  
(Same as Classics 442.)

443 Intensive Survey of the Archaeology of Greece (3)  
(Same as Classics 443.)

444 Intensive Survey of the Archaeology of Etruria and Rome (3)  
(Same as Classics 444.)

462 Early European Prehistory (3)  
Origins and evolution of human culture in Europe through beginnings of settled life. Paleolithic and Mesolithic chronology and lifeways. Prereq: 120 or consent of instructor.

463 Rise of Complex Civilizations (3)  
Development of complex societies in Old World from origins of agricultural economies to rise of States. Mesolithic, Neolithic, and Metal Age Lifeways in Africa, Europe, and Asia. Prereq: 120 or consent of instructor.

464 Principles of Zooarchaeology (3)  
Basic osteological studies of major vertebrate groups; aboriginal use of animals in subsistence and culture. Identification and interpretation of archaeologically derived molluscan and vertebrate remains; introduction to laboratory use of comparative collections. Prereq: 120 or consent of instructor.

465 Urban Archaeology (3)  
Field archaeology and interpretation of archaeological remains on historic urban sites in U.S. Lectures and field and laboratory research on urban sites in East Tennessee. Recommended prereq: 361.

480 Human Osteology (4)  
Intensive examination of human skeleton. Prereq: 110 or consent of instructor. 3 hours and 1 lab.

481 MUSEOLOGY I: MUSEUMS, PURPOSE AND FUNCTION (3)  
(Same as Art 481.)

482 MUSEOLOGY II: EXHIBITION PLANNING AND INSTALLATION (3)  
(Same as Art 482.)

484 MUSEOLOGY III: FIELD PROJECTS (1-12)  
(Same as Art 484.)

485 Oral Biology (4)  

490 PRIMATE EVOLUTION (3)  

494 PRIMATE BEHAVIOR (3)  
Social organization and behavior of selected primates: group composition, size, and structure; patterns of mating; other social interactions; communication; and cultural behavior. Application of primate studies to human ethology. Prereq: 110 or consent of instructor.

500 Thesis (1-15)  
P/NP only.

501 Graduate Research (1-9)  
Independent investigation of special problems in anthropology. May be repeated. Maximum 18 hours.

502 Registration for Use of Facilities (1-15)  
Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

510 Method and Theory in Cultural Anthropology (3)  
Development of primary theoretical orientations by cultural anthropologists; formulation of research problems and methods of collecting, organizing, and utilizing data. Prereq: Consent of instructor.

511 Special Topics in Cultural Anthropology (3)  
Seminars for advanced students on topics of special interest: ethnomedicine, psychological anthropology, comparative social organization, religion, and art. Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

512 Urban Studies in Anthropology (3)  
Process of urbanization examined cross-culturally; theory and method in researching urban communities; urban problems and applied anthropology.

514 Anthropology of Development (3)  
Application of anthropological theory, methods, and findings to community and national development programs. Analysis of anthropologists’ roles, values, and ethical issues in selected case studies. Survey of anthropologists’ work in non-academic settings.

515 Medical Anthropology (3)  
Cultural impact on disease patterning, theories of disease causation, and models of therapy. Theoretical and applied aspects of the anthropological study of health and disease. Prereq: Consent of instructor.

517 Forms of Social Inequality (3)  
Anthropological perspectives on societies stratified along lines of rank, caste, race, ethnicity, and class; inequalities engendered by sex role structure. Construction of social distinctions before and after rise and consolidation of modern world system. Intersections of race and ethnicity with class and gender.

520 Seminar in Zooarchaeology (3)  
Approaches to analysis and interpretation of archaeological fauna. Intensive reading; evaluation and discussion of major faunal studies, guides to identification, methods of presenting faunal data. May be repeated. Maximum 6 hours.

521 Laboratory Studies in Zoarchaeology (4)  
Examination and comparison of skeletons of major vertebrate groups, shells of terrestrial and aquatic mollusks, in relation to animal remains from archaeological contexts. Basic osteology and shell characters of species encountered in aboriginal sites; use of comparative collections. May be repeated. Maximum 8 hours.

522 Seminar in Archaeology (3)  
Theoretical and practical issues in contemporary archaeology: ethnoarchaeology, paleoethnobotany, taphonomy, ceramic analysis, agricultural origins, and regional archaeological cultures. May be repeated. Maximum 9 hours.

530 Fieldwork in Archaeology (3-9)  
Practicum in surveying, excavating, processing, and analysis of archaeological data. Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

550 Contemporary Issues in Anthropology (1-3)  
Review of recent directions in method and theory in anthropology. May be repeated. Maximum 6 hours.

560 Theory in Archaeology (3)  
Detailed consideration of theory in contemporary archaeology: models of scientific explanation, research design, archaeological formation processes, and methods of analysis and interpretation.

561 Archaeological Resource Management (3)  
Federal legislation and regulations affecting identification, protection, and management of archaeological resources. Professional ethics and responsibilities and relationship of federal and state agencies, public interest groups, and professional archaeologists in conduct of federally sponsored archaeology. May be repeated. Maximum 6 hours.

562 Special Topics in Mediterranean Archaeology (3)  
(Same as Classics 562.)

563 Lithic Artifact Analysis (3)  
Methods for analyzing prehistoric stone tools in practical laboratory/lecture format. Stone tool production, use, stylistic variability, and discard processes.

564 Archaeology of Southeastern United States (3)  
Archaeological research on prehistoric American Indian cultures in Southeastern United States; Tennessee prehistory.

565 Graduate Seminar in Ancient Mediterranean Civilization (3)  
(Same as Classics 565.)

580 Advanced Human Variation (3)  
Genetic and morphological variation among extant human groups; relationships of variation to geography, ecology and subsistence.

581 Forensic Anthropology (3)  

582 Paleoanthropology (4)  

583 Skeletal Biology (3)  
Practical and theoretical approaches to analysis of prehistoric human skeletal remains. Demography, vital statistics, pathology, nutrition, and measures of biological relationships as related to population as adaptive unit. Prereq: 480.

585 Laboratory Studies in Biological Anthropology (3)  
Topical coverage of laboratory methods in biological anthropology. Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

590 Method and Theory in Biological Anthropology (3)  
Current methods of analysis in biological anthropology and of past and current history of theoretical perspectives. Paleoanthropology, human osteology, and human variation and population structure. Prereq: Consent of instructor.

591 Foreign Study (1-15)  
See College of Arts and Sciences.

592 Off-Campus Study (1-15)  
See College of Arts and Sciences.

593 Independent Study (1-15)  
See College of Arts and Sciences.

600 Doctoral Research and Dissertation (3-15)  
P/NP only.

601 Advanced Graduate Research (1-6)  
Independent investigation of special problems in anthropology by advanced graduate students. May be repeated. Maximum 12 hours. Only 3 hours may count toward 600-level requirement.

611 Advanced Seminar in Cultural Anthropology (3)  
Critical evaluation of current issues in theory and data interpretation. May be repeated. Maximum 6 hours.

660 Advanced Seminar in Archaeology (3)  
Selected topics in prehistoric and historic archaeology. May be repeated. Maximum 6 hours.

690 Selected Topics in Physical Anthropology (3)  
For doctoral students in biological anthropology. May be repeated. Maximum 6 hours.

691 Selected Topics in Paleoanthropology (3)  
May be repeated. Maximum 6 hours.

695 Gross Human Anatomy (9)  
Skeletol, muscles, and cardiovascular system. Dissection of cadavers. 5 hours and 5 labs. Prereq: 480 or Human Biology.
School of ART

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

Paul Lee, Director
Beauvais Lyons, Graduate Liaison

Professors
Blain, S. J., MFA ................................................. Wisconsin
Brakke, M., MFA .............................................. Yale
Goldenstein, M.B., MFA ..................................... Nebraska
Habel, D.M., PhD ............................................... Michigan
Lee, B., MFA ..................................................... Yale
Lee, P., MFA .................................................... Cranbrook Academy of Art
Leland, W.E., MFA ............................................. Tennessee
Lyons, B., MFA ................................................. Arizona State
Magden, N., PhD .............................................. Case Western Reserve
Moffatt, F.C., PhD .............................................. Denver
Riesing, T.J., MFA ............................................... Nebraska
Staples, C., MFA ............................................... Michigan State
Stewart, F.C., MFA ............................................. Claremont
Wilson, D., MFA ................................................ Wisconsin
Yates, S.A., MFA .............................................. North Carolina (Greensboro)

Associate Professors
Brodgen, S., MFA .............................................. New York State College of Ceramics at Alfred
Hiles, T.W., PhD ................................................. Pennsylvania
Neff, A.L., PhD ................................................. Pennsylvania
Jung, A., MFA ..................................................... Wisconsin

Assistant Professors
Brown, J., MFA ................................................. Rhode Island School of Design
Dewey, W., PhD ............................................... Indiana
Lough, W., MFA ................................................ Temple
Lowe, S., MGD .................................................. North Carolina State
Martin, F., MFA ............................................... Cranbrook
Odem, J., MFA ................................................. Florida State
Shumerl, D., MFA .............................................. Virginia Commonwealth
Wright, S., PhD ................................................... Stanford

MAJOR DEGREE
Art ................................................................. MFA

The Master of Fine Arts is the terminal degree in studio art. It is offered in the concentration areas of ceramics, graphic design, drawing, media arts, painting, printmaking, and sculpture.

MASTER OF FINE ARTS
Art Major

ADMISSION
To become a candidate, the applicant must be admitted by the Office of Graduate Admissions and approved by the School of Art. In addition to the minimum admission requirements, the School of Art specifically requires the following:
- A detailed letter of intent including statement requesting assistantship, if desired.
- Three letters of recommendation from former professors or professionals in the field.
- An undergraduate major in art or evidence of equivalent proficiency.
- A portfolio to be evaluated by the faculty.

Further information is available by writing to the School of Art.

REQUIREMENTS
A minimum of 60 hours to include:
- Successful completion of 20 hours of studio in a concentration area. An inter-area program must be approved by the graduate faculty only after the second semester in residence. Ten hours of concentration must be in second year courses (512, 514, etc.).
- A minimum of 9 hours of graduate level academic (non-studio) courses of which at least 6 hours are to be in art history.
- Eleven hours of electives which may consist of any combination of courses offered by the university for graduate credit.
- Art 599, Project in Lieu of Thesis (20 hours). A third year of semi-independent study. Student must have completed all other coursework prior to registration.

Four semesters (normally the first 40 hours) beyond the bachelor’s degree are required in residence. An exception is made for working professional designers who may complete their first 20 hours, with the permission of the faculty, on a part-time basis. Residence is defined by the School of Art as (1) a minimum enrollment of six hours per semester and (2) use of School of Art facilities so that students are available for discussion and criticism.

The candidate’s committee will consist of a minimum of 3 members and a maximum of six members and will be appointed prior to registration for 599. The committee must consist of one faculty member from the candidate’s concentration area (designated as chairperson) and a faculty member from outside the concentration area. The inclusion of an art history faculty member on each committee is encouraged.

Exhibition and oral examination: With the completion of all requirements for the MFA, the student must produce an exhibition and, in the presence of that work, must satisfactorily complete an oral examination.

ACADEMIC STANDARDS

- First-year evaluation: At the end of the first two semesters in residence, the student must present a portfolio for evaluation by the faculty and receive permission to continue in the program.
- Second-year evaluation: With completion of all coursework, the student must present work for evaluation by the faculty and receive permission to register for Projects in Lieu of Thesis.
- If, in a review by the student’s major area faculty, the student’s progress is deemed insufficient, the faculty may recommend a work period without advancement toward the degree, probation with specific goals set for a specific time, or dismissal.

Art History Minor

A graduate minor in art history may be arranged during the student’s first semester of study with the consent of the student’s area instructors and the art history faculty. Students must complete a minimum of 12 hours in art history that is agreed upon by the art history faculty after review of previous undergraduate
coursework. A reading knowledge of French, German, or Italian is a prerequisite, unless waived by the art history faculty. Graduate Council policy stipulates that a member from the minor unit must serve on the thesis committee.

**GRADUATE COURSES**

**Art (140)**

400 Special Topics (2-4) Student- or instructor-initiated course offered at convenience of department. May be repeated.

410 Drawing (2-4) Intermediate to advanced. May be repeated.

420 Ceramics (2-4) Intermediate to advanced. May be repeated.

430 Photography (2-4) Intermediate to advanced. May be repeated.

440 Painting (2-4) Intermediate to advanced. May be repeated.

450 Metal Design (2-4) Intermediate to advanced. May be repeated.

460 Fiber (2-4) Intermediate to advanced. May be repeated.

470 Fabric (2-4) Intermediate to advanced. May be repeated.

480 Enameling (2-4) Intermediate to advanced. May be repeated.

481 Museology I: Museums, Purpose and Function (3) Development of museums of art, history, natural and applied science. (Same as Anthropology 481.)

482 Museology II: Exhibition Planning and Installation (3) Exhibition concept development and implementation. Exhibition design and installation techniques. Publicity, production, matting and framing, shipping and storage. Prereq: 481 or consent of instructor. (Same as Anthropology 482.)

484 Museology III: Field Projects (1-12) Special field projects: restoration, preservation, registration, and other related research on or off campus. Prereq: 481 and 482, and consent of instructor. May be repeated. Maximum 12 hours. (Same as Anthropology 484.)

490 Wood (2-4) Intermediate to advanced. May be repeated.

499 Special Topics (3) Student- or instructor-initiated course offered at convenience of department. May be repeated. Maximum 12 hours.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

507 Professional Practices: Teaching Internship (1) Individual study in development of skills and methodology in teaching studio courses. For students who are not GTAs. Prereq: Consent of instructor. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences. Prereq: Consent of instructor.

593 Independent Study (1-15) See College of Arts and Sciences. Prereq: Consent of instructor.

595 Visiting Artist Seminar (2) Contemporary art issues by different visiting artists. May not be used toward art history requirement. May be repeated. Maximum 8 hours.

**Art Ceramics (135)**


429 Ceramics: Special Topics (3) Student- or instructor-initiated course offered at convenience of department. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

521 Graduate Ceramics I (2-5) May be repeated. Maximum 10 hours.

525 Graduate Ceramics II (2-5) May be repeated. Maximum 10 hours.

593 Independent Study (1-15) See College of Arts and Sciences. Prereq: Consent of instructor.

595 Visiting Artist Seminar (2) Contemporary art issues by different visiting artists. May not be used toward art history requirement. May be repeated. Maximum 8 hours.

599 Projects in Lieu of Thesis (10) Prereq: All graduate course work and successful second year evaluation by graduate faculty. May be repeated. Maximum 20 hours. Satisfactory/No Credit grading only.

**Art Design/Graphic (136)**

405 Computer Enhanced Graphic Design (3) Exploration of new technologies and their significance to graphic design. Prereq: 351, 356 with a grade of C or better and consent of instructor. May be repeated. Maximum 12 hours.

451 Advanced Graphic Design (3) Theory and techniques of visual problem-solving as applied to advanced applications of graphic design. Prereq: 352 with a grade of C or better.

452 Graphic Design Seminar (3) Discussion of design and professional issues: politics, economics, and ethics for graphic designer. Culminates in student-initiated project. Prereq: 451 with a grade of C or better.

453 Advertising Illustration (3) Media and techniques as applied to advertising illustration. Prereq: 254 and successful completion of any portfolio review.

454 Editorial Illustration (3) Media and techniques as applied to editorial illustration for books, magazines, and newspapers. Prereq: 254 and successful completion of any portfolio review.

456 Graphic Design Practicum (1-12) Practical work experience in graphic design field. Only by prearrangement with department. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

459 Special Topics in Graphic Design (3) Student- or instructor-initiated course offered at convenience of department. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

550 Studies in Graphic Design/Illustration History (3) Design and illustration ca. 1850 to present. Prereq: MFA candidate or consent of department. May be repeated. Maximum 6 hours.

551 Graphic Design I (2-6) May be repeated. Maximum 10 hours.

552 Graphic Design II (2-6) May be repeated. Maximum 10 hours.

553 Computer Enhanced Design (2-6) Prereq: Consent of instructor. May be repeated. Maximum 10 hours.

593 Independent Study (1-15) See College of Arts and Sciences. Prereq: Consent of instructor.

595 Visiting Artist Seminar (2) Contemporary art issues by different visiting artists. May not be used toward art history requirement. May be repeated. Maximum 8 hours.

599 Projects in Lieu of Thesis (10) Prereq: All graduate course work and successful second year evaluation by graduate faculty. May be repeated. Maximum 20 hours. Satisfactory/No Credit grading only.

**Art Drawing (137)**

419 Special Topics in Drawing and Painting (3) Student- or instructor-initiated course offered at convenience of department. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

511 Graduate Drawing I (2-6) May be repeated. Maximum 10 hours.

512 Graduate Drawing II (2-6) May be repeated. Maximum 10 hours.

593 Independent Study (1-15) See College of Arts and Sciences. Prereq: Consent of instructor.

595 Visiting Artist Seminar (2) Contemporary art issues by different visiting artists. May not be used toward art history requirement. May be repeated. Maximum 8 hours.

599 Projects in Lieu of Thesis (10) Prereq: All graduate course work and successful second year evaluation by graduate faculty. May be repeated. Maximum 20 hours. Satisfactory/No Credit grading only.

**Art History (139)**

403 History of Photography (3) Survey of history of photography from introduction of daguerreotype and calotype to more recent trends. Aesthetics and use of photography as medium for artistic expression.

411 Art of South and Southeast Asia (3) Survey of art and architecture of Indian subcontinent and Southeast Asia from 2000 B.C. to 20th century. Major achievements of each period in religious, political, and social contexts.
415 Art of China (3) Survey of art and architecture of China from Neolithic period to 20th century. Major achievements of each period in religious, political, and social contexts.

416 Chinese Art of the 20th and 21st Centuries (3) Survey of Chinese art from the late nineteenth century through the present. Hong Kong, Taiwanese, and expatriate artists are also considered.

419 Art of Japan (3) Survey of art and architecture of Japan from Neolithic period to 20th century. Major achievements of each period in religious, political, and social contexts.

425 Early Christian and Byzantine Art to 1350 (3) Art in Italy and the Eastern Empire from the beginnings of Christian art to c. 1350. Mosaic and painting, sculpture and architecture. Writing-emphasis course. (Same as Judaic Studies 425.)

431 Medieval Art of the West, 800-1400 (3) Western European art of the “Dark Ages,” Romanesque, and Gothic periods. Writing-emphasis course. (Same as Judaic Studies 431.)

441 Northern European Painting, 1250-1600 (3) From courtly art of late Middle Ages to Northern Renaissance. Jan van Eyck, Roger van der Weyden, and Durer: early printmakers. Writing-emphasis course.

442 Art of Northern Europe, 1600-1675 (3) Concentrated study of Bruegel, Rembrandt, Georges de la Tour, Vermeer, Poussin, and Hals. Writing-emphasis course.


453 Art of Southern Europe, 1575-1700 (3) Concentrated study of Caravaggio, Bernini, and Italian Baroque developments in all media. Spanish Baroque painting and sculpture: Velazquez. Writing-emphasis course.

454 Renaissance and Baroque Theory (3) Theory of Western art in early modern period: development and evolution in European Art during Renaissance and Baroque periods. Prereq: 172, 173, or consent of instructor.

461 Art of Southern and Eastern Africa (3) Art traditions of eastern and southern regions of Africa. Sculpture, painting, pottery, textiles, architecture and human adornment. Some ancient Stone and Iron Age traditions. Diverse ethnic and regional art traditions practiced in the area from 11th to 19th centuries A.D. (Same as African and African-American Studies 461.)

462 Art and Archeology of Ancient Africa (3) Historical art traditions of sub-Saharan Africa. Prehistoric rock paintings; art from archaeological sites and ancient kingdoms. First and second millennia B.C. for early terracotta sculpture and rock paintings, 11th through 19th centuries A.D. for later ancient kingdoms. (Same as African and African-American Studies 462.)

463 Arts of the African Diaspora (3) Aesthetic, philosophical and religious patterns of African descendants of Brazil, Surinam, Caribbean and United States. Full range of art forms: sculptural and performance traditions, architecture, textile, basketry and pottery art forms. (Same as African and African-American Studies 463.)

471 History of North American Art (3) Landmarks in painting, architecture, sculpture, and design from prehistory to 1900.

472 History of 20th-Century American Art (3) Developments in architecture, painting, and design from 1900.

473 19th-Century American Painting (3) From West and Copley to emergence of “The Eight.”

474 Theory of 20th-Century Art in Europe and America (3) Theoretical basis for modern movement. Analysis and discussion of individual works of art in light of contemporary writings by artists and theorists. Prereq: 172, 173, or consent of instructor.


476 History of 20th-Century Painting and Sculpture in Europe (3) Development of Modern and Post-Modern movements in Europe. Investigation of progression of abstraction through more recent conceptual trends. Analysis of work of individual artists such as Picasso, Matisse, and others.

479 Special Topics in Art History (3) Student- or instructor-initiated course offered at convenience of department. May be repeated. Maximum 12 hours.

483 History of American Sculpture (3) American sculpture from prehistory to 1900s.


489 Studies in Art History (3) Concentration in individually selected area. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

571 Studies in Medieval Art (3) Art and architecture of Middle Ages; major monuments from Byzantium or western Europe. Prereq: MFA candidate or consent of instructor. May be repeated with consent of department. Maximum 6 hours.

572 Studies in Italian Renaissance Art (3) Art and architecture of 14th, 15th, and/or 16th centuries in Italy. Early or High Renaissance or Mannerist periods. Prereq: MFA candidate or consent of instructor. May be repeated with consent of department. Maximum 6 hours.

573 Studies in Baroque Art (3) 17th-century art and architecture: major artists and works from southern or northern Europe. Prereq: MFA candidate or consent of instructor. May be repeated with consent of department. Maximum 6 hours.

574 Studies in Modern Western Art (3) Selected topics in 19th- and 20th-century western art. Prereq: MFA candidate or consent of instructor. May be repeated with consent of department. Maximum 6 hours.

575 Studies in Modern American Art (3) Selected topics in 19th- and 20th-century American art. Prereq: MFA candidate or consent of instructor. May be repeated with consent of department. Maximum 6 hours.

576 Studies in Asian Art (3) Selected topics in Japanese or Chinese art. Prereq: MFA candidate or consent of instructor. May be repeated with consent of department. Maximum 6 hours.

579 Special Topics in Art History (3) Student- or instructor-initiated course offered at convenience of department. Prereq: MFA candidate or consent of instructor. May be repeated with consent of department. Maximum 9 hours.

Art Media Arts (134)


433 History of Film and Modern Art (3) Study of development and interaction between cinematic arts and visual arts within context of modern art history. Available for Art History credit. (Same as Cinema Studies 433.)

435 Cinematography as Art (3) Continued development of concepts and techniques for creation of film as art form: individual projects. Prereq: 235, 330, or consent of instructor. May be repeated. Maximum 9 hours.

436 Video Art (3) Continued development of concepts and techniques for creation of video works as art form: individual projects. Prereq: 236, 330, or consent of instructor. May be repeated. Maximum 9 hours.

439 Special Topics in Media Arts (3) Student- or instructor-initiated course offered at convenience of department. May be repeated. Maximum 12 hours.

441 Digital Photography II (4) Continuation of exploration and implications of use of computer in photography. Prereq: 330, 341, and consent of instructor.

442 Large Format Photography II (4) Studio course that continues exploration of use of large format camera in photography. Prereq: 330, 342, and consent of instructor.

531 Photography I (2-6) May be repeated. Maximum 10 hours.

532 Photography II (2-6) May be repeated. Maximum 10 hours.

535 Media Arts I (2-6) May be repeated. Maximum 10 hours.

536 Media Arts II (2-6) May be repeated. Maximum 10 hours.

577 Studies in Media as Art (3) Selected topics in theory and history of media as art form. May be repeated. Maximum 9 hours.

593 Independent Study (1-15) See College of Arts and Sciences. Prereq: Consent of instructor.

595 Visiting Artist Seminar (3) Contemporary art issues by different visiting artists. May not be used toward art history requirement. May be repeated. Maximum 12 hours.

599 Projects in Lieu of Thesis (10) Prereq: All graduate course work and successful second-year evaluation by graduate faculty. May be repeated. Maximum 20 hours. Satisfactory/No Credit grading only.

Art Painting (138)

413 Painting IV (6) Advanced painting, individual concepts and personal expression with varied media. Prereq: 313. May be repeated. Maximum 12 hours.

419 Special Topics in Drawing and Painting (3) Student- or instructor-initiated course offered at convenience of department. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.
513 Graduate Painting I (2-6) May be repeated. Maximum 10 hours.
514 Graduate Painting II (2-6) May be repeated. Maximum 10 hours.
515 Graduate Watercolor I (2-6) May be repeated. Maximum 10 hours.
516 Graduate Watercolor II (2-6) May be repeated. Maximum 10 hours.
93 Independent Study (1-15) See College of Arts and Sciences. Prereq: Consent of instructor.
95 Visiting Artist Seminar (2) Contemporary art issues by different visiting artists. May not be used toward art history requirement. May be repeated. Maximum 8 hours.
99 Projects in Lieu of Thesis (10) Prereq: All graduate course work and successful second year evaluation by graduate faculty. May be repeated. Maximum 20 hours. Satisfactory/No Credit grading only.

Art Printmaking (132)
461 Advanced Print Workshop (1-6) Individual and collaborative studio work encompassing theory and practice in intaglio, lithography, relief printing, screening, monoprint, papermaking, books arts and/or photo-print processes. Prereq: 361 or consent of instructor. May be repeated. Maximum 12 hours.
469 Special Topics in Printmaking (3-6) Student- or instructor-initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 hours.
561 Printmaking I (2-6) Directed exploration of any or all matrix-based imaging: intaglio, relief, lithography, screen printing, photo-print methods and monoprint. May be repeated. Maximum 10 hours.
562 Printmaking II (2-6) Directed exploration of any or all matrix-based imaging: intaglio, relief, lithography, screen printing, photo-print methods and monoprint. Prereq: 561.
563 Printmaking III (2-6) Directed exploration of any or all matrix-based imaging: intaglio, relief, lithography, screen printing, photo-print methods and monoprint. Prereq: 561, 562.
564 Printmaking IV (2-6) Directed exploration of any or all matrix-based imaging: intaglio, relief, lithography, screen printing, photo-print methods and monoprint. Prereq: 561, 562, 563.
593 Independent Study (1-15) See College of Arts and Sciences. Prereq: Consent of instructor.
95 Visiting Artist Seminar (2) Contemporary art issues by different visiting artists. May not be used toward art history requirement. May be repeated. Maximum 8 hours.
99 Projects in Lieu of Thesis (10) Prereq: All graduate course work and successful second year evaluation by graduate faculty. May be repeated. Maximum 20 hours. Satisfactory/No Credit grading only.

Art Sculpture (143)
441 Advanced Sculpture (3-6) Individual development of sculptural problems and techniques. Students work independently while participating in group projects, critique, and discussion. Prereq: 6 hours of 300 level sculpture. May be repeated. Maximum 12 hours.
449 Special Topics in Sculpture (3) Student- or instructor-initiated course offered at convenience of department. Prereq: Successful completion of any portfolio review. May be repeated. Maximum 12 hours.
541 Graduate Sculpture I (2-6) May be repeated. Maximum 10 hours.
542 Graduate Sculpture II (2-6) May be repeated. Maximum 10 hours.
593 Independent Study (1-15) See College of Arts and Sciences. Prereq: Consent of instructor.
95 Visiting Artist Seminar (2) Contemporary art issues by different visiting artists. May not be used toward art history requirement. May be repeated. Maximum 8 hours.
99 Projects in Lieu of Thesis (10) Prereq: All graduate course work and successful second year evaluation by graduate faculty. May be repeated. Maximum 20 hours. Satisfactory/No Credit grading only.

Department of AUDIOLOGY AND SPEECH PATHOLOGY
http://web.utk.edu/~aspweb/
Ilsa Schwarz, Head

Professors
Asp. C. PhD ............................................................... Ohio State
Vaughn, T., MS .............................................................. Tennessee
Schwarz, I. PhD ............................................................... Oregon

Associate Professors
Burchfield, S. PhD ........................................................... Michigan State
Hedrick, M., PhD ............................................................. Vanderbilt
Swanson, L., PhD .............................................................. Purdue
Thein, J., PhD ................................................................. Iowa

Assistant Professors
Erickson, M.L., PhD .......................................................... Southern California
Flipsen, P., PhD ................................................................. Wisconsin
Harkrider, A., PhD .............................................................. Texas
Horton-Ikard, R., PhD ............................................................ Wisconsin
Munoz, M., PhD ................................................................. Texas
Plyer, T., PhD ................................................................. Tennessee
Von Hapsburg, D., PhD ........................................................ Texas

Instructor
Singletary, T., MS ................................................................ Colorado State

Clinical Director
Michael, A. PhD .............................................................. Vanderbilt

Clinical Faculty
Barnes, V. MA ................................................................. Tennessee
Beeler, J., MA ................................................................. Tennessee
Buehler, V., MA ................................................................. Tennessee
Donels, E., MA ................................................................. Tennessee
Dungan, J. MA ................................................................. Tennessee
Hume, S., PhD ................................................................. Tennessee
Jenkins, K. MA ................................................................. Tennessee
Lewis, D., MA ................................................................. Tennessee
Pack, J. MA ................................................................ Tennessee
Pearson, E., MA ................................................................ Tennessee
Plyer, E., AuD ................................................................. Arizona School of Health Sciences
Schay, N., MA ................................................................. Tennessee
Searfoss, M., MA ............................................................... Tennessee
Sheridan, C., MA ............................................................... Tennessee
Singletary, T., MS .............................................................. Colorado State
Thomason, T. MA .............................................................. Tennessee
Thurman, S., MA ............................................................... Tennessee
Valentine, D. MA ............................................................... Tennessee
Vaughn, T., MS ................................................................ Eastern Kentucky
Ward, T., MS .................................................................. East Tennessee State
Webb, P., MEd ................................................................ Florida
Yeager, K., BS ................................................................ South Alabama

MAJORS DEGREES
Speech Pathology ................................................................. MA
Audiology ......................................................................... AuD
Speech and Hearing Science .................................................... PhD

MASTER OF ARTS
Speech Pathology Major

Admission to this graduate program is competitive. This graduate program is accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association.
The master’s program in speech pathology is a two-year program and consists of the completion of 42 semester hours of academic content courses (including thesis) plus practicum. A minimum of three academic courses must be completed during all semesters (terms) except one. That is, students must take a minimum of nine semester hours of academic courses for at least four semesters or terms and six semester hours in the other semester or term.

The required courses are 506, 511, 518, 526, 539 or 541, 561, 582, and at least two seminars from the following courses: 522, 523, 531, 626, or 661 and at least 15 hours of elective courses. Undergraduate coursework may not be substituted for seminar courses. Students who have not completed an undergraduate course in each of the following three areas--speech sound disorders, voice disorders, and fluency disorders--must complete one graduate course in each of the three areas.

Students majoring in speech pathology may elect either the thesis or non-thesis option. The master’s program in speech pathology with thesis includes six hours of 500 credit in the preparation of an acceptable thesis representing original independent work, and a final oral examination. Students in the non-thesis option must pass a final written examination.

### Aural Habilitation Concentration

Graduate students in both audiology and speech pathology may elect to pursue a concentration in the area of aural habilitation. Admission to the program is competitive and applications are available on the departmental website. The aural habilitation concentration requires:

- Three semesters of clinical practicum in treatment of children who have hearing impairments totaling a minimum of 130 clock hours,
- Completion of 6 semester hours of graduate course work in language, audiology and/or aural habilitation in elective requirements for the MA or AuD.

Specific requirements are outlined in the MA and AuD Graduate Handbooks as well as on the departmental website.

### DOCTOR OF AU迪LOGY

**Audiology Major**

The Doctor of Audiology (AuD) program is designed to prepare individuals for professional careers in audiology. The degree program is clinically oriented, with primary emphasis on processes involved in hearing, vestibular function, and communication. The program is designed to meet the entry-level requirements for the practice of audiology established by the Council on Academic Accreditation of the American Speech-Language-Hearing Association. Students will be expected to demonstrate competencies in the following areas:

- Prerequisite knowledge and skills for the practice of audiology.
- Foundations of practice for audiology.
- Prevention and identification of auditory, vestibular, and related communication disorders.
- Evaluation of auditory, vestibular, and related communication disorders.
- Treatment of auditory, vestibular, and related communication disorders.

The program will normally consist of four calendar years of study beyond the baccalaureate degree with the first three years being devoted primarily to formal coursework, and the last year to a full-time externship in the practice of clinical audiology.

### REQUIREMENTS

The program is a minimum of 112 semester hours, including a minimum of:

- 67 semester hours of academic coursework at the 500- and 600-levels.
- 3 semester hours of directed research in audiology, vestibular, or related communication disorders.
- 24 semester hours of clinical practice in audiology.
- 18 semester hours of externship in audiology.
- A qualifying examination.
- A comprehensive examination.

### Aural Habilitation Concentration (see preceding section)

**DOCTOR OF PHILOSOPHY**

**Speech and Hearing Science Major**

The PhD program in with a major in speech and hearing science seeks to develop individuals for professional careers in a variety of positions including research and college teaching in the concentration areas of speech and language pathology, audiology, speech-language science or hearing science. The degree program is research oriented with primary emphasis on processes involved in normal, or disordered speech, language and hearing. Students will be expected to demonstrate their knowledge in areas related to the concentrated field of study. These areas include:

- Basic speech, hearing, or language processes.
- Basic speech, hearing, or language disorders or differences.
- Related disciplines providing insight into human communication processes.
- Technical skills in instrumentation and experimental design which enable the student to investigate problems pertaining to speech and hearing processes.

### REQUIREMENTS

The doctoral program requires successful completion of course work, research projects, a comprehensive examination and dissertation. The total program includes a minimum of 60 semester hours with a minimum of:

- 6 semester hours in a research tool
- 6 semester hours in a cognate field outside the department
- 24 semester hours in the major area of study (6 credits must be at the 600 level within the department). These will include:
  - a. a minimum of 6 semester hours on the topic of major interest
  - b. a minimum of 6 semester hours earned through participation in two different research projects
  - c. 3 semester hours of ASP 611 (Experimental Design) course (or equivalent)
To complete the doctoral program, students must prepare a dissertation and defend it successfully. Students must pass a comprehensive examination with both a written and an oral component before being advanced to candidacy. The doctoral program should be developed in the first year of study and is the responsibility of the student and the doctoral committee.

GRADUATE COURSES

Audiology and Speech Pathology (160)

431 Stuttering (3) Nature, appraisal and treatment. Prereq: 300 or consent of instructor.

433 Observation of Clinical Practice (1) Prereq: 320 or consent of instructor.

434 Clinical Practice in Speech-Language Pathology II (1-4) Prereq: 433 and consent of instructor. Enrollment for fewer than 2 hours must have prior departmental approval.

435 Introduction to Speech Sound Disorders (3) Etiology, diagnosis, and treatment of articulatory and phonological disorders. Prereq: 300, 305, or consent of instructor.


455 Problems in Speech Pathology (1-3) Prereq: Consent of instructor.


473 Introduction to Audiologic Assessment (3) Basic principles of clinical audiometry; pure tone, speech, masking and overview of special auditory tests. Prereq: 300 and consent of instructor.

475 Appraisal of Speech and Language Disorders (3) Diagnostic procedures for children and adults with speech and language problems including observation and practice with diagnostic tests. Prereq: 300 and consent of instructor.

494 Aural Habilitation/Rehabilitation of the Hearing Impaired (3) Psychosocial aspects, amplification components/characteristics, assistive devices, speech acoustics, speech perception, speech reading, parent-infant, preschool school years of children, communication impairments/handicaps/remediation of adults, effects of aging/remediation on the elderly, and case studies. Prereq: 305, 473, or equivalents or consent of instructor.

500 Thesis (1-15) P/NP only.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

506 Neural Bases of Speech and Language (3) Structure and function of central and peripheral nervous systems, role in speech and language. Prereq: 306.

507 Anatomy and Physiology of Hearing (3) Structure and function of the peripheral and central auditory systems, and their roles in mediating auditory processes. Prereq: 473 or equivalent or consent of instructor.

511 Introduction to Research in Speech and Hearing (3) Analysis of research techniques, fundamentals of statistics, application of statistics, and completion of a proposal and hypothetical pilot research project.

512 Clinical Practice in Audiology (1-4) Coreq: 546. May be repeated. Maximum 24 hours.

515 Practicum in Aural Rehabilitation (1-4) Prereq: 473 and 494 or equivalent. May be repeated. Maximum 9 hours.

518 Adult Neurogenic Communication Disorders I (3) This course will assist students in developing basic biological, social, clinical and theoretical understandings of commonly observed neurological impairments. Prereq: 506 or equivalent or consent of instructor.

519 Adult Neurogenic Communication Disorders II (3) This course will assist students in developing an advanced understanding of the neural, behavioral, social, clinical and theoretical understandings of acquired neurological cognitive-linguistic impairments. Prereq: 506 and 518 or consent of instructor.

522 Seminar in Speech Sound Disorders (3) Current research in diagnosis and management of speech sound disorders. Prereq: 435 or equivalent or consent of instructor.

523 Seminar in Voice Disorders (3) Current research in diagnosis and management of voice disorders. Multicultural, gender and age-related issues. Prereq: 440 or consent of instructor.

526 Dysphagia (3) Clinical diagnosis, evaluation, and treatment of adult swallowing disorders and critical interpretation of research literature on dysphagia. Prereq: 506 or consent of instructor.

531 Seminar on Stuttering (3) Current significant research in stuttering. Prereq: 431 or consent of instructor.

533-534 Advanced Clinical Practice in Speech-Language Pathology (1-4, 1-4) Prereq: 434 or equivalent and consent of instructor. 534 may be repeated. Maximum 6 hours. Enrollment for less than 2 hours must have prior departmental approval.

535 Advanced Clinical Practice in Speech-Language Pathology: Off-Campus Sites (1-4) Prereq: 100 hours clinical experience, consent of instructor. May be repeated. Maximum 6 hours. Enrollment for less than 2 semester hours must have prior departmental approval.

538 Advanced Clinical Practice in Speech-Language Pathology: Public Schools (1-4) May be repeated. Maximum 6 hours. Enrollment for less than 2 hours must have prior departmental approval.

539 Motor Speech Disorders (3) Neuromotor organization for speech production; types of motor speech disorders and associated neuromuscular symptomatology; diagnosis and management of motor speech disorders. Prereq: 506.


541 Pediatric Oromotor Disorders (3) Evaluation, diagnosis, and treatment of pediatric oromotor disabilities that affect normal acquisition of feeding and prespeech skills. Prereq: 506 or consent of instructor.

542 Hearing Disorders (3) Effects of heredity, development/aging, diseases, and physical agents on hearing. Prereq: 473 or equivalent or consent of instructor.

543 Amplification Technology (3) Description of hearing aid circuits, components and performance characteristics, Electroacoustical and real-ear analysis of hearing aids. Coupler material and geometry effects. Practical experience in troubleshooting, repair, and construction of hearing aids. Prereq: 473, 507 or equivalents or consent of instructor.


545 Sound Measurement Techniques and Hearing Conservation (3) Techniques of measurement and analysis of sound: hearing conservation in schools and industry. Prereq: Consent of instructor.

546 Audiologic Assessment (3) Theoretical bases for behavioral audiometry and acoustic immittance measurement.

547 Special Problems in Audiology (1-3) Prereq: 473 or equivalent and consent of instructor. May be repeated. Maximum 6 hours.

552 Seminar in Speech Pathology (2-3) Current significant research in speech pathology. Topics vary. Prereq: 9 hours in speech pathology. May be repeated with consent of department. Maximum 9 hours.

555 Special Problems in Speech-Language Pathology (1-3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

556 Independent Study in Speech-Language Pathology (1-3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

558 Phonological Disorders (3) Current theories and approaches to assessment and intervention for individuals with difficulty acquiring or using speech sound system of English. Prereq: 435 or equivalent or consent of instructor.

561 Child Language Disorders (3) Current literature on assessment and intervention techniques for young language learners. Prereq: 461 or equivalent or consent of instructor.

563 Language Disorders: Birth to Three (3) Overview of family-focused, transdisciplinary intervention process. Assessment/treatment of infants, toddlers, and preschoolers. Description of disabilities and resulting communication disorder. Prereq: 461 or equivalent or consent of instructor.

574 Pediatric Audiology (3) Theoretical and practical considerations in evaluation and treatment of hearing loss in infants and children. Audiological intervention in case management of hearing impaired child: amplification, educational alternatives, and state and federal guidelines.
576 Physiologic Assessment of the Auditory System II (3) Otocochleography, and auditory brainstem responses. Anatomical origins, principles, and applications. Use of these responses in evaluation of auditory function and determination of site-of-lesion. Prereq: 507, 546 or equivalents, or consent of instructor.

577 Vestibular Disorders (3) Anatomy, physiology, and pathophysiology of vestibular system and other systems that contribute to balance. Practicum in electronystagmography. Prereq: 507, 542, 546, 576 or equivalents or consent of instructor.

581 Assessment of Central Auditory Processing (3) Overview of current central auditory processing disorder (CAPD) literature and assessment procedures, with emphasis on a holistic view by combining perceptual, electrophysiological, linguistic, and cognitive measurements. Prereq: 546, 574, 594 or equivalents or consent of instructor.

582 Speech and Language Services in School (3) Organization and implementation of speech and language programs in schools.

583 Physiologic Assessment of the Auditory System II (3) Middle-latency long-latency, and event-related potentials. Neurophysiological mechanisms, principles, and applications. Use of these potentials in evaluation of neuropsychological and cognitive function. Prereq: 576 or equivalent or consent of instructor.

584 Amplification for Children with Hearing-Impairment (3) Study of strategies for selecting and fitting amplification systems for children; outcome measures and service coordination. Prereq: 543, 544, 574 or equivalents or consent of instructor.

585 Cochlear Implants (3) Overview of cochlear implants, focusing on theory of auditory stimulation and cochlear implant systems; candidacy, surgical preparation, and follow-up; outcome measures; the rehabilitation process; and cochlear implant case presentations. Prereq: 507, 576, 583 or equivalents or consent of instructor.

586 Standards and Practice Issues in Audiology (3) Overview of professional practice standards, ethics, medical/legal issues, business practices, and reimbursement procedures in audiology. Prereq: 512 or equivalent or consent of instructor.

591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences.

594 Advanced Aural Habilitation/Rehabilitation of the Hearing-Impaired (3) Study of grieving process, counseling, group and individual amplification systems, classroom/speech acoustics, central auditory problems, therapy methods for habilitation and rehabilitation, speech reading, school-based programs, programs for adults and the elderly; student research reports/case studies. Prereq: 473, 494 or equivalents or consent of instructor.

595 The Verbotonial System: Auditory/Speech Perception (3) Innovative theory, therapy procedures, and SUIVAG amplification/filtered for diagnosis/ evaluation/medication of spoken language/listening skills of hearing-impaired children/adults: use of rhythms, movements and suprasegments; special audiometric tests, acoustic filters, correcting misarticulations through optimal listening; central auditory treatment; second (foreign) language through listening/spoken language; relationship of concepts to conventional concepts/practice; student research reports. Prereq: 505, 473, 494 or equivalents or consent of instructor.

600 Doctoral Research and Dissertation (3-15) P/NP only.

601 Experimental Phonetics (3) Acoustical and perceptual analyses of speech production and overall oral communication. Prereq: 517 or consent of instructor.

602 Psychoacoustics (3) Auditory perception and reception of nonspeech and speech stimuli. Prereq: 507 or equivalent or consent of instructor.

604 Genetics & Pharmacology of Hearing (3) Study of genetics, pharmacology, and general cellular processes as they relate to hearing. Prereq: 507 or equivalent or consent of instructor.

605 Speech Perception and Hearing Impairment (3) Study of perception of nonspeech and speech stimuli, with particular emphasis on the effects of hearing impairment on perception.


609 Seminar in Speech Science (3) Experimental areas: speech physiology, acoustic analysis, recognition, perception and intelligibility of speech, communication theory, and psycholinguistic measurement of speech and language. Topics vary. Prereq: 601 or consent of instructor. May be repeated. Maximum 6 hours.

611 Experimental Design in Speech and Hearing (3) Analysis of experimental design in theses and related journals. Generation of experimental designs. Prereq: Consent of instructor.

613 Externship in Audiology (1-9) Off-campus clinical training experience. Prereq: Consent of instructor. May be repeated. Maximum 36 hours.

626 Advanced Seminar in Neurologically-based Communication Disorders (3) Topics vary. Prereq: 520, 539, 524 or consent of instructor. May be repeated. Maximum 6 hours.

650 Advanced Seminar in Audiology (3-6) Topics vary. Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

652 Advanced Seminar in Speech and Language (2) Topics vary: aberrations of voice, articulation, speaking time and rhythm, language development or use, and language symbolization. Prereq: Consent of instructor. May be repeated. Maximum 8 hours.

655 Practicum in College Teaching (1-3) Supervised experience in college teaching. Prereq: Consent of instructor. May be repeated. Maximum 6 hours. Satisfaction/No Credit grading only.

656 Directed Research (1-4) Participation in ongoing or non-dissertation research. Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

657 Directed Study in Speech Pathology (1-3) Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

658 Directed Study in Audiology (1-3) Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

659 Directed Study in Speech Science (1-3) Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

660 Directed Study in Hearing Science (1-3) Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

661 Advanced Seminar: Language Disorders in Children (3) Topics vary. Prereq: 561 or consent of instructor. May be repeated. Maximum 6 hours.

662 Seminar in Audiologic Assessment (3) Synthesis of information on audiologic and vestibular assessment and application of clinical cases. Prereq: 542, 546, 574, 576, and 577, or equivalents or consent of instructor.

663 Seminar in Aural Rehabilitation (3) Synthesis of information on audiologic habilitation and rehabilitation cases. Prereq: 543, 544, 584, 594, or equivalents or consent of instructor.

Department of

BIOCHEMISTRY AND CELLULAR AND MOLECULAR BIOLOGY

http://web.bio.utk.edu/bcmb/

Bruce D. McKee, Head and Graduate Liaison

Professors

Ganguly, R., PhD ............................................................. Nebraska
Handel, M.A., PhD .......................................................... Kansas State
Howell, E., PhD ............................................................ Lehigh
Joy, D. (Distinguished Scientist), PhD .................................. Oxford (UK)
Kennedy, J., PhD ............................................................. Iowa
Koontz, J., PhD ............................................................... Kentucky
MacCabe, J., PhD ............................................................... California (Davis)
McKee, B., PhD ............................................................... Michigan State
Peterson, C., PhD ............................................................. Louisiana State
Roberts, D., PhD ............................................................... California (Davis)
Serpersu, E., PhD .............................................................. Hatecepe

Associate Professors

Bruce, B., PhD ............................................................... California (Berkeley)
Hall, J., PhD ................................................................. Illinois
Prosser, R., PhD .............................................................. Illinois

Assistant Professors

Dealwis, C., PhD ............................................................. London
Fernandez, E., PhD .......................................................... Loyola
Guo, H., PhD ................................................................. Harvard
Jain, N., PhD ................................................................. Brandeis
Labrador, M., PhD .......................................................... Madrid (Spain)
Park, J., PhD ................................................................. Texas
Venkatachalam, S., PhD ................................................... Ohio State
DOCTOR OF PHILOSOPHY
Biochemistry And Cellular And Molecular Biology Major

REQUIREMENTS

- Biochemistry and Cellular and Molecular Biology 511-512-513, 515-516, and 517.
- At least two additional approved graduate courses in the life sciences or chemistry, or physics, or other physical science to be determined upon consultation with the mentor and the dissertation committee. No survey courses will be accepted.
- At least 6 hours of topics offered in 615 or its equivalent.
- Participation in 601 and 603 during the entire period of residence. Participation in at least one journal club chosen from among 605-608 for six semesters.
- Comprehensive examination, taken before the end of the third year of study.
- A dissertation reporting the results of original and significant research carried out during the term of candidacy.
- A final oral examination which will be concerned primarily with the student’s dissertation.

PETITIONING FOR MASTER’S DEGREE

Students who have passed the comprehensive examination in the PhD program and have completed at least 30 hours of approved coursework for graduate credit, at least two-thirds of which must be at or above the 500 level, may petition the department for award of a master’s degree. The additional requirements for such a degree are:

- The preparation of a research manuscript suitable for submission for publication in a major scientific journal and oral defense of that manuscript before an examining committee of three faculty members appointed by the head of the department, at least two of whom shall be members of the department; or
- Publication of at least one full-length paper in a major scientific journal as senior author.

GRADUATE COURSES

Biochemistry and Cellular and Molecular Biology (188)

401-402 Biochemistry-Molecular Biology I, II (4,4) 401—Amino acid structure and chemistry, protein structure and chemistry, protein folding, enzyme behavior and function, reaction mechanisms, catabolism and energy transfer, synthetic metabolism including photosynthesis, and protein transport. 402—Structure of DNA and RNA, experimental methods of analyzing nucleic acids, mechanisms of RNA and protein synthesis, mechanisms of DNA replication, repair and recombination, chromosome structure and function, regulation of gene expression, genome structure and genomics, and mechanisms of biological regulation. Prereq: Biology 240, Chemistry 350, 360, 369.


410 Cellular and Comparative Biochemistry (4) Electrolyte behavior, chemistry and structure of proteins; enzyme behavior and biological function; catabolism and energy capture; synthetic metabolism; nucleic acid function; protein synthesis, and biochemical genetics; regulation of biological processes. May not be counted if credit received for 401. 3 hours and 1 discussion. Prereq: Chemistry 350, 360, 369; Biology 140, 240.

421 Cell and Tissue Structure and Function (4) Study of animal cells and tissues at light and electron microscope levels. 2 hours and 2 labs. Prereq; Biology 140.

429 Cell Biology Laboratory (3) Series of open-ended, discovery-based exercises developed to design and test new drugs using modern cell biology and computer technologies. Experimental modules: techniques used in cell isolation, purification, culturing, fluorescent microscopy, receptor binding and signal transduction, apoptosis, cell cycle analysis, protein and steroid secretion, computer modeling, and state-of-the-art electron microscopy. Experiment design, execution, data analysis, and peer evaluation. Prereq/Coreq: 401 or 410.

440 General Physiology (3) Principles of cellular and organ-system animal physiology. Prereq; Biology 140. Coreq; Chemistry 350, 360. Recommended prereq: Physics 221-222.


471-481 Biophysical Chemistry (3,3) Physicochemical principles with applications to biological systems. 471—Thermodynamics; chemical equilibrium; solution chemistry; transport; electrochemistry; kinetics; enzyme catalyzed reactions. 481—Elementary quantum chemistry; interactions of light with biological molecules; optical and magnetic spectrosocpy; light scattering; case studies of selected macromolecules. Prereq; Chemistry 350, 360; Mathematics 125; General Biology or consent of instructor. (Same as Chemistry 471-481.)

480 Physiology of Exercise (3) (Same as Exercise Science 480.)

500 Thesis (1-15) P/NP only.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

511 Advanced Protein Chemistry and Cellular Biology (3) Cellular structure and function at molecular and supramolecular level in progression: protein structure and function; membrane structure and function; bioenergetics and membrane proteins. Prereq; Prior knowledge of cell biology and biochemistry and/or consent of instructor.

512 Advanced Molecular Biology (3) Regulation of nucleic acid expression and protein activity. Nucleic acid structure and function; replication and repair of nucleic acids; gene expression; protein synthesis; post-translational protein modification; mitosis and meiosis; cell cycle and cell growth. Prereq; 511 or consent of instructor.

513 Advanced Protein Biochemistry and Cell Biology II (3) Advanced topics of cellular function and regulation of cell division and growth, and structure and function of supramolecular structures: cytoskeleton and cell junctions and adhesions. Prereq; 511.

515 Experimental Techniques I (4) Modern experimental methodology and instrumentation lab. cell growth; spectrophotometry; microscopy; nucleic acid purification and analysis; protein assays; enzyme purification; electrophysiology; computer analysis of nucleic acid and protein sequences. Lecture on theory of laboratory to accompany two lab periods per week. Primarily for departmental graduate students. Prereq; Consent of instructor.

516 Experimental Techniques II (3) Laboratory rotations. Students work in laboratory of faculty member on clearly defined project. Written proposal and oral report. Primarily for departmental graduate students. Prereq; 515. Satisfactory/No Credit grading only.

517 Physical Biochemistry (3) Physics and chemistry of biological systems and molecules. Thermodynamics; diffusion and transport; physical chemistry of macromolecules; enzyme kinetics; binding reactions; spectroscopy; electrophysiology. Prereq; 511 or consent of instructor.

520 Special Topics (1-3) Selected directed readings or special course in topics of current interest. Consult departmental listing for offerings. May be repeated with consent of instructor. Maximum 6 hours. Satisfactory/No Credit grading only.

525 Graduate Research Participation (3-12) Tutorial laboratory experience. May be repeated. Maximum 12 hours.

530 Experimental Design and Analysis (2) Development of skills in strategies of experimental design and interpretation of experimental results. Critical discussion of research articles illustrating issues in experimental design. Preparation of grant proposal in standard format to be read and discussed by class and by panel of faculty expert in area of proposal. Prereq; Consent of instructors.

550 Advanced Concepts in Neurobiology/Physiology (3) Concepts related to neurobiology/physiology with information taken from current literature. Prereq; Consent of instructor. May be repeated.

552 Physiology of Hormones (3) Cellular and organismal action of hormones in invertebrate and vertebrate animals. 2 hours and 1 lab. Prereq; Consent of instructor. Recommended prereq: 410.

560 Advanced Concepts in Structural Biology/Biochemistry (3) Concepts related to structural biology/biochemistry with information taken from current literature. Prereq; Consent of instructor. May be repeated.

561 Environmental Toxicology (3) (Same as Ecology and Evolutionary Biology 561.)

562 Introduction to Electron Microscopy -Transmission Electron Microscope (4) Practical application to techniques for preparation of biological samples for viewing in transmission electron microscope. Use of microscope and ancillary equipment, darkroom techniques, preparation of materials for publication and special project. Two 3 hour labs. Admission limited only to departmentally approved graduate students. (Same as Botany 510.)

564 Introduction to Electron Microscopy-Scanning Electron Microscope (3) Practical introduction to techniques of electron microscopy and to scanning electron microscope. Use of microscope, introduction to darkroom techniques and digital image processing, preparation of samples for observation, and special project. 2 hours and 1 lab. Prereq; Consent of instructor.

570 Advanced Concepts in Cellular/Molecular Biology (3) Concepts related to cellular/molecular biology with information taken from current literature. Prereq; Consent of instructor. May be repeated.

580 Advanced Concepts in Genetics/Developmental Biology (3) Concepts related to genetics/developmental biology with information taken from current literature. Prereq; Consent of instructor. May be repeated.

591 Foreign Study (1-15) See College of Arts and Sciences

592 Off-Campus Study (1-15) See College of Arts and Sciences

593 Independent Study (1-15) See College of Arts and Sciences

600 Doctoral Research and Dissertation (3-15) P/NP only.

601 Departmental Seminar (1) Invited speakers. Topics posted in advance. Required every semester in residence. Satisfactory/No Credit grading only.

603 Graduate Research Colloquium (1) Seminars and lectures dealing with current advances in fields of biochemical and biophysical methods. Prereq; Prior knowledge of cell biology and biochemistry and/or consent of instructor. Recommended prereq: 410.

605 Journal Club in Neurophysiology/Physiology (1) Readings and discussion based on current literature. Prereq; Consent of instructor. May be repeated.

606 Journal Club in Structural Biology/Chemistry (1) Readings and discussion based on current literature. Prereq; Consent of instructor. May be repeated.

607 Journal Club in Cellular/Molecular Biology (1) Readings and discussion based on current literature. Prereq; Consent of instructor. May be repeated.

608 Journal Club in Genetics/Developmental Biology (1) Readings and discussion based on current literature. Prereq; Consent of instructor. May be repeated.

610 Current Topics in Biochemistry, Cellular, and Molecular Biology (1-3) Critical reviews of research problems and methods in biochemistry, cell biology and/or molecular biology. Oral presentations, written reports, computer simulations by faculty and students. Prereq; Consent of instructor. May be repeated. Maximum 4 hours.

612 Advanced Topics in Environmental Toxicology (1-3) (Same as Ecology and Evolutionary Biology 612.)

615 Special Topics in Biochemistry, Cellular, and Molecular Biology (3) Biochemical and biophysical methods, mechanisms of enzyme catalysis, gene expression, membrane structure and function, metabolic regulation, physical biochemistry, molecular genetics, cell biology, neurobiology, and related topics. Prereq; 511, 512 or consent of instructor. May be repeated. Maximum 9 hours.
Department of BOTANY
http://fp.bio.utk.edu/botany
Edward E. Schilling, Head and Graduate Liaison

Professors
Hickok, L., PhD ......................................................... Massachusetts
Hughes, K., PhD .......................................................... Utah
Mullin, B., PhD ............................................................. North Carolina State
Petersen R. (Distinguished Professor), PhD .................................. Columbia
Pigliucci, M., PhD .......................................................... Connecticut
Schilling, E., PhD ............................................................ Indiana
Schwarz, O., PhD ............................................................ North Carolina State

Associate Professors
Smith, D., PhD ................................................................. Tennessee
von Arnim, A., PhD ......................................................... East Anglia (UK)
Wofford, B.E. (Curator of Herbarium), PhD .................................... Tennessee

Assistant Professors
Nebenführ, A., PhD .......................................................... Oregon State
Small, R., PhD ................................................................. Iowa State
Williams, J., PhD ............................................................. Georgia

Lecturer
McFarland, K., PhD .......................................................... Tennessee

MAJOR DEGREES
Botany ................................................................. MS, PhD

The Department of Botany offers the Master of Science and Doctor of Philosophy degrees with a major in botany and concentrations in anatomy, bryology, cytology, cytogenetics, ecology, genetics, lichenology, molecular biology, morphology, mycology, photobiology, physiology, phycology, pteridology, and systematics.

Educational service is required of each graduate degree candidate and such service will include teaching and/or ancillary services performed in the department related to the instruction of courses.

For further information, contact the department head or the graduate coordinator.

ADMISSION
The Botany Department requires scores from the general portion of the Graduate Record Examination, at least three letters of recommendation or standard recommendation forms from academic or professional persons, a short statement describing the candidate and such service will include teaching and/or ancillary services performed in the department related to the instruction of courses.

The determination of deficiencies and the manner in which they will be removed will be decided upon by the student’s pro-tem committee during the first meeting with the student.

MASTER OF SCIENCE
Botany Major

The program for the Master of Science is patterned to fit the needs of students who desire a less extensive course of study than the PhD program. However, the applicant must be equally well prepared and display an aptitude and ability for advanced study. The MS includes thesis and non-thesis options.

REQUIREMENTS

Thesis Option

The thesis program is the usual route taken by botany students for the MS. It is important that the entering student promptly identify a major professor and a suitable research project. The requirements for the thesis option consist of the following:

- Satisfactory preparation of a written formulation and an oral defense to the student’s committee of a research proposal suitable for a thesis. This must be completed before enrollment in Botany 500.
- Successful completion of 30 hours of graduate credit, at least two-thirds of which must be at the 500 level or higher.
- Satisfactory completion of two hours at the 600 level.
- Preparation of a written thesis and its oral defense.
- Presentation of a 30 minute departmental seminar.
- Educational service in the form of teaching and/or ancillary services; consult major professor and department head.

Non-Thesis Option

- Satisfactory completion of 34 semester hours of approved graduate courses of which 30 semester hours must be in botany including Botany 503. At least two-thirds of the hours must be at the 500 level or higher.
- Satisfactory completion of two hours at the 600 level.
- Educational service in the form of teaching and/or ancillary services; consult major professor and department head.
- Satisfactory performance on a final written examination on all work offered for the degree. The student’s committee may also require that an oral examination follow the written examination.

The listed requirements for the MS should be interpreted as minimal requirements. Specific stipulations or requirements such as additional foreign languages or an additional oral comprehensive examination may be required by the student’s faculty committee.
DOCTOR OF PHILOSOPHY
Botany Major

The Doctor of Philosophy program is patterned to provide training that involves extensive independent research within the student’s area of concentration. Although there is no formal program of coursework, the student’s committee may require specific courses for the completion of the degree. Most students spend from three to five years working on their PhD.

REQUIREMENTS

- Satisfactory presentation of a research problem by means of a written proposal and an oral defense to the student’s committee. This must be completed before enrollment in Botany 600.
- Satisfactory performance on a written comprehensive examination.
- Presentation of one or more cognate areas outside of the department totaling 6 hours of graduate credit with at least a B average.
- Satisfactory completion of 6 hours at the 600 level (excluding dissertation).
- Preparation of a written dissertation and its oral defense.
- Presentation of a departmental seminar near the end of the doctoral program.

The listed requirements for the PhD should be interpreted as minimal requirements. Specific stipulations or requirements such as additional foreign languages or an additional oral comprehensive examination may be required by the student’s 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 Economics for program description.

GRADUATE COURSES

Botany (198)

401 Field Studies in Botany (1-3) Field experience and taxonomy of special plant groups. Topics vary: bryology, lichenology, pteridology, agrostology, mycology, phycology, aquatic vascular plants, synantherology, woody plants, and botanical photography. May be repeated under different topic. Maximum 9 hours.


412 Plant Anatomy (3) Cells, tissues and organs: development in vegetative and reproductive structures of vascular plants—seed plants. Prereq: Botany 110-120 or 130-140 or equivalent.

419 Science as Method (3) (Same as Ecology and Evolutionary Biology 419; Philosophy 419.)

431 Plant Ecology (4) Interactions between individuals, species, communities and their environments. Circulation of energy and matter in ecosystems. Weekly field trips or laboratory periods, and at least two weekend field trips. Prereq: 330 or equivalent. (Same as Ecology and Evolutionary Biology 431.)

451 Plant Tissue Culture (3) (Same as Entomology and Plant Pathology 451; Plant Sciences 451.)
Kabalka, G.W. (Robert H. Cole Professor, Alumni Distinguished Service Professor), PhD .............................................. Purdue
Kovac, J.D., PhD ................................................................. Yale
Larose, J.Z., PhD ............................................................... Wesleyan
Magid, L.J., PhD ............................................................... Tennessee
Magid, R.M., PhD ............................................................ Yale
Mays, J.W., (Distinguished Scientist, Science Alliance Center of Excellence), PhD ................................................. Akron
Pagni, R.M., PhD ............................................................... Wisconsin
Schweitzer G.K. (Alumni Distinguished Service Professor), PhD ............................................................................. Illinois
Sepaniak, M.J., PhD ......................................................... Iowa State
Williams, T.F. (Alumni Distinguished Service Professor), PhD ............................................................................. London (UK)
Woods, III, C., PhD ......................................................... North Carolina State
Wunderlich, B. (Distinguished Scientist), PhD .............. Northwestern
Xue, Z., PhD ................................................................. UCLA

Associate Professors
Dadmun, M.D., PhD ......................................................... Massachusetts
Gilman, S.D., PhD ......................................................... Penn State
Hinde, R.J., PhD .............................................................. Chicago
Musfeldt, J.L., PhD ........................................................ Florida
Schell, F.M., PhD ........................................................ Indiana

Assistant Professors
Turner, J.F.C., PhD ......................................................... Oxford (UK)
Young, D.G.J., PhD ......................................................... Ohio State
Zheng, X., PhD ............................................................... Pennsylvania
Zhao, B., PhD ............................................................... Akron

MAJOR DEGREES
Chemistry .............................................................................. MS, PhD

The requirements for the MS with a major in chemistry consist of the satisfactory completion of:

- Research and a thesis to give 6 to 12 hours of graduate credit in Chemistry 500.
- Sufficient graduate course work in chemistry (at the 400 level or above) and/or a related field to make an overall total of 30 hours, including one of the following sequences: 510-511-512, three of 530-531-532-533, 550-551-552, 570-572-573 and 590-594-595. At least 14 hours of this graduate coursework must be at the 500 level or above.
- A final oral examination.

DOCTOR OF PHILOSOPHY
Chemistry Major

CONCENTRATIONS

The department offers concentrations in eight areas for the PhD with a major in chemistry: analytical chemistry, chemical physics (in cooperation with the Department of Physics), environmental chemistry, inorganic chemistry, organic chemistry, physical chemistry, polymer chemistry, and theoretical chemistry.

REQUIREMENTS

The requirements for the PhD in chemistry (except for the chemical physics concentration) consist of the satisfactory completion of:

1. Research and a dissertation to give at least 24 hours of graduate credit in Chemistry 600. Registration must be continuous from the beginning of research.
2. Participation in seminar (Chemistry 501) during the entire period of graduate study, including the presentation of at least one seminar. (No more than 2 hours may be applied to the course requirements.)
3. Prescribed courses based on performance on diagnostic examinations.
4. Completion of the comprehensive examination series and defense of an original research proposal to give 2 hours of credit in Chemistry 601.
5. Eighteen additional hours in courses at the 500 level or above including at least one course above 601 and one of the following sequences: 510-511-512, 530-531-532-533, 550-551-552-553-554, 570-571-572-573 and 590-594-595.
6. A final oral examination.

The PhD program with a concentration in chemical physics is conducted jointly with the Department of Physics. Requirements depend on the choice of the major department. Chemistry departmental requirements include passing the above degree requirements in chemistry with concentration in physical
chemistry plus six additional hours in physics at the 500 level or above. Three of the additional physics hours can be used to satisfy the 18 hours requirement in item 5.

GRADUATE COURSES

Chemistry (235)

430 Advanced Inorganic Chemistry (3) Atomic and molecular structure, bonding theories, descriptive chemistry of elements, kinetics and mechanism of inorganic reactions, applications of modern techniques for characterization, coordination and organometallic chemistry. Prereq: 230.


471-481 Biophysical Chemistry (3,3) (Same as Biochemistry and Cellular and Molecular Biology 471-481.)

473-483 Physical Chemistry (3, 3) Students may not receive credit for both 471 and 473 nor for both 481 and 483. 473 - Properties of gases; first, second and third laws of thermodynamics; chemical equilibria; simple phase equilibria; properties of solutions. 483 - Introduction to statistical thermodynamics; kinetics of chemical reactions; introduction to quantum mechanics and applications to electronic structure of atoms and molecules; molecular spectroscopy. Prereq: 130 or 138; Physics 136 or 138 or 222 or 231; and Mathematics 241, 247.

479-489 Physical Chemistry Laboratory (2,2) Experiments on topics discussed in 471-481 or 473-483. 1 lab. Prereq/Coreq: Corresponding courses 471 or 473 for 479 and 481 or 483 for 489.

500 Thesis (1-15) P/NP only.

501 Chemistry Seminar (1) Lectures and discussion on current research. May be repeated. Continuous registration required for resident graduate students. Satisfactory/No Credit grading only.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

505 Special Problems (3) Specially assigned theoretical or experimental work on problems not covered in other courses. Prereq: Consent of department. May be repeated. Maximum 6 hours Satisfactory/No Credit grading only.

510 Analytical Spectrometry (3) Principles and practice of optical and mass spectrometric techniques in quantitative chemical analysis. Required background: Two semesters of physical chemistry.

511 Analytical Separations (3) Principles and practice of chemical separations based on extraction, chromatographic, and electrophoretic phenomena. Required background: Two semesters of physical chemistry.

512 Electroanalytical Chemistry (3) Fundamentals of electrode processes; principles and practice of electroanalytical techniques in quantitative chemical analysis and applied to study of chemical systems. Required background: Two semesters of physical chemistry.

530 Chemical Bonding (3) Wave mechanical atom, group theory, quantum approach to molecular orbital theory, covalent, ionic, and metallic bonding, ligand field theories, solid state. Required background: One semester of inorganic chemistry.

531 Characteristicsof Inorganic Compounds (3) Descriptive chemistry of elements; structure, reactions, kinetics, mechanisms, equilibria, and spectra of coordination, organometallic, bioinorganic compounds. Required background: One semester of inorganic chemistry.

532 Experimental Methods of Inorganic Chemistry (3) Electronic, infrared, Raman, microwave, NMR, ESR, nuclear quadrupole, Mossbauer, mass, and photoelectron spectroscopies for characterization of inorganic compounds. Required background: One semester of inorganic chemistry.

533 Chemistry of the Transition Metals (3) Theoretical and experimental foundations of modern coordination, organometallic, and bio-inorganic chemistry of transition metals; transition metal mediated catalysis, materials chemistry, isothermal theory, kinetics and mechanism of reactions of transition metals, and applications in organic synthesis. Required background: One semester of inorganic chemistry.

550 Structure and Reactivity in Organic Chemistry (3) Structure and bonding in organic compounds; molecular orbital theory, stereochemistry, conformational analysis, and molecular mechanics; substituent effects on acidity and reactivity; introduction to reaction mechanisms. Required background: Two semesters of organic chemistry.


552 Organic Reaction Mechanisms (3) Techniques and principles in study of organic reaction mechanisms; applications and interpretations in polar, radical, and pericyclic reactions; reactive intermediates. Prereq: 550.


554 Organic Spectroscopy Laboratory (1) Use of IR, UV, MS and multinuclear FTNMR spectrometers. Development of problem-solving ability in area of spectroscopic characterization of organic molecules. Prereq: 360 or equivalent. Coreq: 553.

570 Quantum Chemistry and Spectroscopy (3) Basic principles of quantum mechanics and their applications to molecular orbital theory, molecular structure, and spectroscopy; introduction to group theory. Required background: Two semesters of physical chemistry.

571 Advanced Quantum Chemistry and Spectroscopy (3) Prereq: 570 or consent of instructor.

572 Thermodynamics and Statistical Mechanics (3) Macroscopic and microscopic description of equilibrium systems. Basic principles of thermodynamics and statistical mechanics, and application to selected chemical systems. Required background: Two semesters of physical chemistry.

573 Chemical Kinetics and Transport (3) Time-dependent phenomena in chemistry: chemical kinetics, chemical dynamics, transport theory. Required background: Two semesters of physical chemistry.

590 Polymer Chemistry (3) Fundamentals of polymer synthesis and characterization through application of organic and physical chemical principles. Required background: Two semesters each of organic and physical chemistry.


595 Physical Chemistry of Polymers (3) Conformation of macromolecules, solution and bulk properties, rubber elasticity, kinetics of polymerization, polymer thermodynamics. Prereq: 590 or equivalent.

600 Doctoral Research and Dissertation (3-15) P/NP only.

601 Chemistry Research Proposal (2) Preparation and oral defense of original written research proposal based on thorough survey of chemical literature. Prereq: Consent of department head. Satisfactory/No Credit grading only.

610 Selected Topics in Analytical Chemistry (3) Topics of current significance. Prereq: 510, 511, 512 or consent of instructor. May be repeated. Maximum 12 hours.

630 Selected Topics in Inorganic Chemistry (3) Topics of current significance. Prereq: 530, 531, 532 or consent of instructor. May be repeated. Maximum 12 hours.

650 Selected Topics in Organic Chemistry (3) Topics of current significance. Prereq: Two of 550, 551, 552 or consent of instructor. May be repeated. Maximum 12 hours.

670 Selected Topics in Physical Chemistry (3) Topics of current significance. Prereq: 570, 572, 573 or consent of instructor. May be repeated. Maximum 12 hours.

690 Selected Topics in Polymer Chemistry (3) Topics of current significance. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

691 Selected Topics in Thermal Analysis of Polymeric Materials (3) Topics of current significance. Prereq: Consent of instructor. May be repeated. Maximum 9 hours. Maximum 3 hours may be applied toward degree in chemistry.
The graduate courses in the Classics include the wider reading of Greek and Latin authors in a selected field, a more detailed study of one of the great genres of classical literature, and the development of background for the appreciation of Greek or Roman life and literature.

Students admitted to the Anthropology MA may pursue an emphasis in Mediterranean archaeology. (See Department of Anthropology.)

GRADUATE COURSES

Classics (257)

401 Greek Poetry (3) Epic, lyric, drama. Authors vary. Prereq: 261. May be repeated. Maximum 9 hours.

402 Greek Prose (3) History, philosophy, and oratory. Authors vary. Prereq: 261. May be repeated. Maximum 9 hours.

405-406 Selected Readings from Greek Literature (3,3) For advanced students in Greek, plays, historical writings, poetry of ancient Greece in original Greek. Prereq: 401-402 or consent of instructor. May be repeated. Maximum 9 hours.

414 Cicero and Techniques of Latin Prose Composition (3) For advanced students in Latin, practice in prose composition, writings of Cicero the model. Prereq: 351-352 or consent of instructor.

431-432 Selected Readings from Latin Literature (3,3) For advanced students in Latin, oratory, historical writings, poetry of ancient Rome in original Latin. Prereq: 351-352 or consent of instructor. May be repeated. Maximum 9 hours.

435 Medieval Latin (3) Selected readings from Latin prose and poetry of medieval Europe. Prereq: Consent of instructor.

436 Cities and Sanctuaries of the Greek and Roman World (3) Major cities and sanctuaries in Greece, the Greek colonies, and the Roman Empire. Approach is archaeological, focusing on physical evidence--landscape, architecture and artifacts--as well as description of ancient authors. Cities include various types: planned and unplanned, seaports, caravan centers, government and commercial centers. The sanctuaries also vary in function including prophetic centers, athletic centers, theater centers, and healing centers. Writing-emphasis course. (Same as Anthropology 436.)

441 Special Topics in Classical Civilization (3) Art, literature, religion, and society of Greece and Rome. May be repeated with consent of department. Maximum 9 hours.
MASTER OF SCIENCE
Computer Science Major

ADMISSION
Two semesters of calculus plus two additional semesters of college mathematics (e.g., linear algebra, differential equations, probability) and a course in discrete structures and in systems programming are required for admission.

REQUIREMENTS
For the master’s degree, 30 semester hours of graduate credit are required, 24 of which must be 500 level or above. Computer Science 530, 560 and 580 are required for the degree. Graduate courses taken outside the department are sometimes allowed but must be approved by the Graduate Committee before enrollment.

Thesis Option
The student must reach agreement on a thesis topic with a faculty advisor and must take 6 hours of 500 Thesis. Six hours of 500 Thesis may count in the 24-hour requirement at the 500 level or above.

Non-Thesis Option
The student must take coursework in an area to prepare for the non-thesis master’s examination. The student’s advisor must verify that an acceptable set of courses has been taken before the student may schedule the examination. Information concerning the examination is available in the departmental office.

Problems in Lieu of Thesis Option
The student must reach agreement on the problem topic with a faculty advisor and pass an oral exam on the problems before a committee of three or more faculty members, at least two of whom must be computer science faculty.

Computer Science Minor
The graduate minor consists of any two of the three core courses (530, 560, 580) plus an additional 3 hours of graded computer science graduate-level courses at or above the 400 level.

DOCTOR OF PHILOSOPHY
Computer Science Major

ADMISSION
A student seeking admission to the PhD program is expected to meet the following requirements:

- The student should have three letters of recommendation sent directly to the department head from individuals capable of assessing the student’s potential for advanced work in computer science (for example, college teachers or employers for whom the student has worked after earning a bachelor’s degree). The department reserves the right to contact these individuals or other knowledgeable people if additional information is deemed necessary or desirable.

- The student is expected to have taken the GRE verbal and quantitative general test within the past three years and to have these scores sent to the Office of Graduate Admissions.

- The student should satisfy the same background requirements as for the master’s program. See the departmental brochure for details.

REQUIREMENTS
Original research reported in a dissertation of high quality is emphasized. The minimum hour requirements are 24 hours of course 600 Doctoral Research and Dissertation and 24 hours of graduate courses beyond the equivalent of a master’s degree (i.e., beyond 30 graduate credit hours) graded A-F. Computer Science 530, 560 and 580 are required for the degree. At least six hours of 600-level graded courses must be taken in computer science at the University of Tennessee, Knoxville. The student’s advisor and committee will establish the specific course requirements. The comprehensive examination consists of a departmental written examination and a subsequent oral examination conducted by the student’s committee.

GRADUATE COURSES

Computer Science (266)

420 Advanced Topics in Machine Intelligence (3) Search, learning, expert systems, neural networks, pattern recognition and natural language processing. Faculty research. Prereq: Completion of core curriculum or consent of instructor. May be repeated. Maximum 9 hours.

430 Advanced Topics in Hardware Systems (3) Architecture, parallel processors, microprogramming, networks and communications. Faculty research. Prereq: Completion of core curriculum or consent of instructor. May be repeated. Maximum 9 hours.

460 Advanced Topics in Software Systems (3) Operating systems, compilers, parallel computation, software engineering, database systems and programming languages. Faculty research. Prereq: Completion of core curriculum or consent of instructor. May be repeated. Maximum 9 hours.

470 Advanced Topics in Scientific Computation (3) Numerical methods, supercomputers and computer modeling and simulation of physical systems. Faculty research. Prereq: Completion of core curriculum or consent of instructor. May be repeated. Maximum 9 hours.

471 Numerical Analysis (3) (Same as Mathematics 471.)

472 Numerical Algebra (3) (Same as Mathematics 472.)

480 Advanced Topics in Theoretical Computer Science (3) Theory of computation, complexity theory, formal languages and graph theory and its applications. Faculty research. Prereq: Completion of core curriculum or consent of instructor. May be repeated. Maximum 9 hours.

494 Special Topics in Computer Science (1-3) May be repeated. Maximum 9 hours.

500 Thesis (1-15) P/NP only.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

522 Cybernetics (3) Various functions in living systems and their actual or potential realization in computers. Prereq: Discrete Structures.

525 Software Engineering (3) Survey of key ideas in software engineering: formal methods, tools, testing, reliability, structured design and development, metrics, management and history of the field.

530 Computer Systems Organization (3) Architectures and systems organization for serial and parallel machines. Prereq: Architecture or machine organization.


541 Database Management Systems (3) Data model theory, optimization, and normalization; intelligent database systems; comparison of implementations; analysis of distributed and networked databases. Techniques for evaluation of performance, integrity, security and reliability. Prereq: 311.

551 Pattern Analysis (3) Decision-theoretic and structural pattern analysis. Deterministic and statistical decision rules, feature extraction and representation; syntactic and semantic methods, relational models. Prereq: Discrete structures and probability or statistics.

552 Image Analysis (3) Enhancement and restoration of digital images. 2D transforms, Segmentation and description. Computational procedures for image reconstruction. Prereq: One year calculus and discrete structures.

560 Software Systems (3) Design and implementation of compilers, software systems; optimization, run-time storage administration. Software system design issues; description, structure and design of contemporary software systems. Prereq: 360.

571-572 Numerical Mathematics (3) (Same as Mathematics 571-572.)

574 Finite Element Methods (3) (Same as Mathematics 574.)

575 Matrix Theory and Techniques in Numerical Analysis (3) (Same as Mathematics 575.)

576 Sparse Matrix Computations (3) Solution of large sparse linear systems: graph models, reordering techniques, symbolic factorizations, data structures, numerical algorithms, complexity analyses, parallel algorithms. Prereq: Numerical linear algebra.

580 Foundations (3) Foundations of computer science, including computability, computational complexity, fundamental algorithms and algorithm analysis. Required background: Automata theory.

581 Advanced Design and Analysis of Algorithms (3) Analysis of algorithms and relevance of analysis to design of efficient computer algorithms. Sorting, searching, graph algorithms, pattern matching, dynamic programming, efficient approximation algorithms. Prereq: 580.

593 Independent Study (1-15) May be repeated.

594 Special Topics in Computer Science (1-3) May be repeated.

600 Doctoral Research and Dissertation (3-15) P/NP only.

620 Advanced Topics in Intelligent Systems (1-6) Prereq: Consent of instructor. May be repeated with consent of department.

650 Advanced Topics in Pattern/Image Analysis (1-6) Prereq: Consent of instructor. May be repeated with consent of department.

660 Advanced Topics in Software Systems (1-6) Prereq: Consent of instructor. May be repeated with consent of department.

670 Advanced Topics in Scientific Computing (1-6) Prereq: Consent of instructor. May be repeated with consent of department.

680 Advanced Topics in Theory and Foundations (1-6) Prereq: Consent of instructor. May be repeated with consent of department.

690 Advanced Topics in Computer Science (1-6) Prereq: Consent of instructor. May be repeated with consent of department.

The Department of Earth and Planetary Sciences offers both the MS and PhD with a major in geology. Persons interested in these programs should contact the Director of Graduate Admissions in the department.

ADMISSION

For admission, an applicant must provide transcripts of previous university work, two rating forms or letters of recommendation, and GRE scores (general). Students are not normally admitted under non-degree status.

Prerequisite for both degrees is a bachelor’s degree, including coursework in mineralogy, optical mineralogy, petrology, stratigraphy, paleontology, structural geology, and field geology. One year each of coursework in calculus and chemistry and one year of coursework in biology, physics, or statistics are also required. Applicants lacking any of these may be admitted, but the deficiencies must be removed within the first year without graduate credit. Substitutions may also be allowed.

MASTER OF SCIENCE

Geology Major

REQUIREMENTS

The department offers the thesis option in the master’s program. Graduation requires successful oral defense of a written thesis and a minimum 3.0 GPA in all graduate coursework.

Course requirements are a minimum of 30 semester hours, including:

- Six hours of Thesis 500.
- Registration in 595 during the first two years in residence. Two hours may be counted toward the 30-hour minimum. This requirement may be waived in unusual circumstances.
- Sixteen hours of geology courses, with at least 14 hours at the 500 or 600 level, including at least one course from any three of the following five groups:
  1. 410, 460, 475, 480, 530, 563, 565, 568.
  2. 420, 421, 450, 545, 546, 550, 556, 557
  3. 470, 570, 572, 575, 576.
  5. Any 400- or 500-level courses with graduate credit from related departments (allied ciences, mathematics, and engineering), selected with approval of the advisor.
- Eight hours of additional graduate coursework.

Department of EARTH AND PLANETARY SCIENCES

http://geoweb.gg.utk.edu/

Claudia I. Mora, Head
Larry D. McKay, Graduate Liaison

Professors
Broadhead, T.W., PhD .................................................. Iowa
Driese, S.G., PhD ...................................................... Wisconsin
Dunne, W.M., PhD ..................................................... Bristol
Hatcher, R.T., (UT Knoxville/DOE, Distinguished Scientist), PhD .................................................. Tennessee
Labotka, T.C., PhD .................................................. California Institute of Technology
McKinney, M.L., PhD .................................................. Yale
McSween, H.Y., (Distinguished Professor of Science), PhD .................................................. Harvard
Misra, K.C., PhD .................................................. Western Ontario
Mora, C.I. (Carden Professor, Head), PhD .................................................. Wisconsin
Taylor, L.A., PhD .................................................. Lehigh

Associate Professors
Clark, G.M., PhD .................................................. Penn State
McKay, L.D., PhD .................................................. Waterloo
Williams, R.T., PhD .................................................. Virginia Tech
Assistant Professors
Kah, L.C., PhD .................................................. Harvard
Moersch, J.E., PhD .................................................. Cornell
Perfect, E., PhD .................................................. Cornell
Uhl, M., PhD .................................................. Virginia

MAJOR DEGREES

Geology ................................................................. MS, PhD
DOCTOR OF PHILOSOPHY
Geology Major

The prerequisite for the PhD program, in addition to that for the MS program, is either a master’s degree with a major in geology or a bachelor’s degree plus completion of 24 hours of graded coursework with at least one course from any three of the groups listed in #3 above. These courses may be taken while completing other course requirements.

REQUIREMENTS

Graduation requires passing a comprehensive examination, taken no later than the end of the second year; completion of all course requirements with a minimum 3.0 GPA, completion of the language requirement, and successful oral defense of the dissertation.

The comprehensive examination includes both written and oral parts in which the candidate will be tested on his/her knowledge of the area concerning the proposed dissertation and of related fields. The candidate is expected to be conversant in a wide field of geological sciences.

A minimum of 24 hours of graded coursework beyond the master’s degree is required in addition to the 24 hours of Dissertation 600. The coursework includes the sum of 9 hours of 600-level geology courses, 9 hours of 500-level or higher geology courses, and 6 hours of additional graduate courses. Extra departmental coursework is encouraged.

The student must demonstrate a reading knowledge of a foreign language in which there is a body of geologic literature, as approved by the student’s dissertation committee. The foreign language requirement may be waived for PhD students whose native language is not English and who have demonstrated mastery of the English language, as determined by the student’s dissertation committee.

GRADUATE COURSES

Geology (424)

401 Quantitative Methods in Geology (3) Applications of calculus and differential equations to problems in earth sciences. Examples of diffusion equation in hydrogeology; wave equation in geophysics; mechanical modeling and boundary conditions in structural geology and tectonics. Prereq: two 100-level geology courses and Mathematics 141, or consent of instructor.


411 Optical Mineralogy (2) Laboratory course on principles of optical mineralogy. Use of petrographic microscope to identify rock-forming minerals with applications to petrology and environmental mineralogy. Prereq: 310.

412 Elements of X-Ray Diffraction (2) Laboratory course on principles and applications of X-ray diffraction. Phase identification, quantitative determination of mineral abundances in mixtures, and crystal structure determination. Prereq: 310.

420 Paleocoeology (4) Principles of ecological analysis as applied to fossils and fossil assemblages: data collection and interpretation. Laboratory designed around preparation of scientific reports based on field and laboratory analysis. 3 hours and 1 lab. Writing emphasis course.

421 Invertebrate Paleontology (4) Survey of invertebrate animal phyla: skeletal structure and preservation, functional morphology, ecology, and stratigraphic distribution. 2 hours and 2 hour labs. Prereq: 320 or consent of instructor.

440 Field Geology (5) Summer field course for advanced undergraduate geology majors and first-year graduate students in geology. Taught off-campus and requires full time of student. Synthesis of major aspects of geological sciences in societal context. Field techniques demonstrated, practiced, and applied to solution of geologic problems. Prereq: Completion of major core courses and consent of instructor.

450 Process Geomorphology (3) Integrative approach to development of surface of earth based upon case histories, maps, remote sensing imagery. 2 hours and one 2 hour lab. Prereq: two 100-level geology courses or consent of instructor. (Same as Geography 450.)

455 Basic Environmental Geology (3) Applications of geological sciences toward comprehension of effects of geological processes on humans and effects of human activities on earth’s environments. 2 hours and one 3 hour lab or field period. Prereq: one 100-level geology course or consent of instructor.

460 Principles of Geochemistry (4) Applications of chemical principles to geologic systems: problem-solving techniques. Phase diagrams, partitioning of trace elements, thermodynamic principles for evaluating stabilities of mineral assemblages, aqueous solutions, and applications of radiogenic and stable isotopes to geologic systems. 3 hours and one 2 hour tutorial. Prereq: Chemistry 120-130, Mathematics 141-142. Recommended prereq: Geology 330 or consent of instructor.

470 Applied Geophysics (3) Basic principles of geophysical exploration: applications to environmental problems. Seismic and electromagnetic methods. Prereq: 6 hours of geology courses numbered above 300 and Physics 135-136 or equivalent, or consent of instructor.

475 Physical and Chemical Systems of the Earth (3) Development of physical earth from solar nebula to present. Formation, composition and evolution of hydrosphere, crust, mantle, and core. Interdependence of earthquakes, volcanism, plate tectonics, geomagnetism, chemical and isotopic processes of interior, and earth’s temperature. Historical perspective on major controversies of past, and problems unresolved today. 2 hours and 1 discussion. Prereq: 16 hours of geology courses numbered 300 and above.

480 Principles of Economic Geology (4) Ore-forming processes, classification of mineral deposits, survey of different types of mineral deposits with examples, and metallogenesis. 1 hour and one 2 hour lab. Prereq: 310 and 330 or equivalents. Recommended prereq: 460.

485 Principles of Hydrogeology (3) Physical principles of flow, flow equations, geologic controls, aquifer analysis, water well design/testing, introduction to transport processes. Prereq: one 100-level geology course, Mathematics 141-142, and Physics 135 or 136 or equivalent, or consent of instructor. (Same as Civil Engineering 485.)

486 Hydrogeology Laboratory (1) Application and demonstration of hydrogeological principles in field and laboratory. Prereq or coreq: 485 or Environmental Engineering 535 or consent of instructor.

500 Thesis (1-15) P/NP only.

501 Fractal Models in Earth Sciences (3) An introduction to the theory and methods of fractal analysis as applicable to earth sciences. Topics include deterministic and statistical fractals, self-affine fractals, multifractals, percolation, renormalization group theory, cellular automata, and methods of estimating fractal parameters (e.g., dimension and lacunarity). Applications to be discussed include: characterization of coastlines, drainage basins, and fracture networks; terrain simulation; modeling porous media and hydraulic properties; rock fragmentation; spatial variability of mineral deposits; and temporal variability of earthquakes and floods. Prereq: 401, or at least two Earth Science related courses, or consent of instructor.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or for faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

505 Structure of the Southern and Central Appalachians (2) Structural development of Southern and Central Appalachians from extensional Late Proterozoic—early Paleozoic rift-drift-platform margin through processes related to compressional events producing accretionary elements that formed Appalachians throughout the Paleozone. Comparisons to similar orogens. Prereq: 370.

510 Clay Mineralogy (3) Origin, chemistry, structures, and properties of clay minerals; application of mineralogical techniques in clay mineral studies. 2 hours and 1 lab. Prereq: 310 and 568 or equivalent.

530 Petrogenesis of Crystalline Rocks (4) Origin and properties of igneous and metamorphic rocks, magmatic and subvolcanic processes and physical conditions. Laboratory involves petrographic study of crystalline rocks in thin section. 3 hours and 1 lab. Prereq: 410.

535 Applied Ground Water Hydrology (3) (Same as Environmental Engineering 535.)
Environments of deposition of modern
Oklahoma State
Arizona
Stanford
Cornell
Imaging subsurface features using reflected
Integrative approach to study of natural
Advanced treatment of selected topics in
Cornell
Measurement of hydraulic properties, drilling, sampling and instrumentation,
Engineering 553 or equivalent; and consent of instructor.

Groundwater, aquifer protection. Prereq: 485 or 535; 460; or Environmental
Contaminants, sampling and monitoring methods, remediation of contaminated
585 Contaminant Hydrogeology (3)

Sedimentation: role in groundwater flow. Prereq: Structural
572 Fracture Analysis (3)

Formation of continents through comparative anatomy of mountain
575 Tectonics (4)

Energy sources, modes of wave propagation, field procedures,
576 Reflection Seismology (3)

Theoretical aspects of isotope fractionation
563 Stable Isotope Geochemistry (3)

Application of thermodynamics to geologic
565 Chemical Petrology (3)

Collection and treatment of geochemical
564 Organic Geochemistry (3)

The evolution of Earth’s lithosphere in context of plate tectonics
567 Quaternary Ecology (3)

Field and microscopic
545 Sandstone Petrology/Physical Sedimentology (4)

Field and microscopic analysis of terrigenous clastic rock types; physical processes of sedimentation,
544 Carbonate Sedimentology (4)

Field, microscopic, and geochemical analysis of fossil
543 Paleopedology (3)

Application of electron microprobe, x-ray fluorescence, and atomic absorption
542 Geochemical Analysis (3)

Field and microscopic analysis of sample material and preparation of scientific reports.
541 Regional Geomorphology (3)

Research methods.
571 Seminar in Geophysics (3)

Directed study or special topics. Prereq: 340 or equivalent.
592 Off-Campus Study (1-15)

Advanced treatment of selected topics in geophysics. Prereq: 470 or consent of instructor.
685 Seminar in Hydrogeology (3)

An introduction to the use of visible, infrared, microwave/radio, and nuclear remote sensing techniques in
the geologic study of the Earth. Topics covered include mineral spectroscopy, light scattering models, instrumentation for remote sensing, calibration and atmospheric removal, multi- and hyperspectral image cube analysis, and ground-truthing techniques. Emphasis on working directly with remote sensing data to solve geologic problems. 2 lecture hrs and one 2-hour lab. Prereq: 310; Mathematics 141-142; and Physics 135; or consent of instructor.
540 Seminar in Local Geology (1)

Introduction of geology of Southern Appalachians. 1 hour plus field trips.
550 Regional Geomorphology (3)

Integrative approach to study of natural geomorphological regions stressing links and similarities across boundaries, unique characteristics of major divisions, provinces, sections, and districts. May be repeated with consent of instructor. Maximum 6 hours.
555 Ice-Age Environments and Global Climate Change (3)

Some as Ecology and Evolutionary Biology 556.)
557 Quaternary Ecology (3)

Fundamentals of organic geochemistry; primary production, diagenesis, and preservation of organic matter in the sedimentary rock record; research techniques and applications to geologic environments using biomarker compounds. 3 lecture hours. Prereq: Chemistry 120-130 or equivalent or consent of instructor
561 Organic Geochemistry (3)

Collection and treatment of geochemical data using electron microprobe, x-ray fluorescence, and atomic absorption spectrophotometry techniques. 2 hours and 1 lab. Prereq: 310 or consent of instructor.
568 Geochemical Analysis (3)

Field and microscopic analysis of terrigenous clastic rock types; physical processes of sedimentation,
544 Carbonate Sedimentology (4)

Evolution of Earth’s lithosphere in context of plate tectonics
567 Quaternary Ecology (3)

Field and microscopic analysis of sample material and preparation of scientific reports. 3 hours and 1 lab.
541 Regional Geomorphology (3)

Formation of continents through comparative anatomy of mountain
575 Tectonics (4)

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561 Organic Geochemistry (3)

Collection and treatment of geochemical data using electron microprobe, x-ray fluorescence, and atomic absorption spectrophotometry techniques. 2 hours and 1 lab. Prereq: 310 or consent of instructor.
568 Geochemical Analysis (3)

Field and microscopic analysis of terrigenous clastic rock types; physical processes of sedimentation,
Shared faculty are drawn from other university departments, the Oak Ridge National Laboratory, the U.S. Geological Survey, and the Tennessee Valley Authority.

MAJOR       DEGREES
Ecology and Evolutionary Biology ................................................. MS, PhD

The Department of Ecology and Evolutionary Biology administers an interdisciplinary graduate program which offers the Master of Science and Doctor of Philosophy degrees with a major in ecology and evolutionary biology and concentrations in behavior, ecology (including mathematical ecology) and evolutionary biology.

ADMISSION
Applications are accepted once a year. The deadline for receipt of all application materials is 6 January for those applicants wishing to enroll in the following fall or spring semesters. Applications incomplete as of that date, or received after that date, will not be considered. Applicants are expected to have an academic background consistent with a bachelor’s degree in one of the life sciences. They are expected to have completed a minimum of one year of general biology, two years of chemistry including one year of general chemistry, one year of physics, and one year of college-level calculus. Occasionally, applicants who are highly qualified otherwise but lack one of these courses or course sequences will be admitted with the expectation that the deficiency will be made up within the first year of graduate study. Applicants are required to submit scores from the general Graduate Record Examination (GRE) and successful applicants will usually have a composite score of at least 1850. Submission of scores on appropriate (e.g., biology, mathematics) advanced GRE examinations is recommended but not required. Applicants are also expected to have an overall grade-point average of at least 3.0, and 3.0 or above for all science and mathematics courses, on a 4.0 scale (successful applicants will usually have grade-point averages well above these minima).

Application must be made to both the Office of Graduate Admissions and the department. The departmental application requirements 3 letters of reference from persons capable of assessing the applicant’s suitability for graduate work in biology and a statement of professional goals and reasons for applying to this program. Applicants for the doctoral degree are expected to have made prior contact with potential research advisors in the department’s graduate program and this approach is recommended for applicants for the master’s degree program as well. Inquiries should be directed to the Chair, Graduate Committee, Department of Ecology and Evolutionary Biology, the University of Tennessee, Knoxville, Tennessee 37996-1610.

MAJOR OF SCIENCE
Ecology And Evolutionary Biology Major

REQUIREMENTS
In addition to general requirements of the Graduate Council, aspirants for the Master of Science are expected to: (1) during the first semester in residence, take a prescriptive diagnostic examination covering major concepts in ecology and evolutionary biology. The examination may be taken twice and must be passed before the student is admitted to candidacy; (2) complete course requirements as determined by the department and the student’s faculty dissertation research committee; and (3) satisfactorily complete and defend a research thesis.

DOCTOR OF PHILOSOPHY
Ecology And Evolutionary Biology Major

REQUIREMENTS
In addition to general requirements of the Graduate Council, aspirants for the Doctor of Philosophy degree are expected to: (1) during the first semester in residence, take a prescriptive diagnostic examination covering major concepts in ecology and evolutionary biology. The examination may be taken twice and must be passed before the student is admitted to candidacy; (2) complete course requirements as determined by the department and the student’s faculty dissertation research committee; (3) pass a written and oral comprehensive examination designed to test for adequate knowledge in those areas essential to the student’s research program; and (4) satisfactorily complete and defend a dissertation. The department does not require a reading knowledge of a foreign language, but this may be imposed by the student’s faculty dissertation research committee. If so, the student has the option of demonstrating reading knowledge of the prescribed language by either (a) passing the official reading examination given by the language department or (b) earning a grade of at least a B in the second semester of a special language reading course for graduate students.

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 Economics for program description.

GRADUATE COURSES

Ecology and Evolutionary Biology (278)

411-412 Minicourse in Ecology and Evolutionary Biology (2) Selected advanced topics in ecology, behavior, and evolutionary biology, concentrated in time and subject matter. Consult departmental listing for topics offered. Prereq: As announced. May be repeated. Maximum 4 hours may apply toward departmental major.

419 Science as Method (3) Dynamic process of scientific discovery. Comparisons of science, non-science, pseudoscience, successful and unsuccessful science. Ethics of scientific research, philosophical aspects of scientific enterprise, and implications for teaching and writing about science. Prereq: Introductory science or philosophy course, or consent of instructor. (Same as Botany 419; Philosophy 419.)

421 Community Ecology (3) Interactions between individuals, species, communities and environments, including competition, coexistence, predation, herbivory; causes and consequences of biological diversity; biological invasions; application of advanced sampling and analysis techniques; local to global environmental change. Periodic field trips or laboratories. Prereq: Biology 250 or equivalent.

431 Plant Ecology (4) (Same as Botany 431.)

446 Introduction to Oceanography (4) Basic oceanography: physical, chemical, geological and biological processes and patterns. Oceanic subsystems: upwellings, polar oceans, hydrothermal vents, gyres, coral reefs, estuaries, and coastal regions. Field trip to coast required. Prereq: General Biology and Chemistry 120-130; Biology 250 recommended.

450 Comparative Animal Behavior (3) Principles and methods of ethology: ecological, developmental, physiological and evolutionary aspects. (Same as Psychology 450.)

459 Comparative Animal Behavior Laboratory (3) Introduction to observational and experimental research in ethology. Coreq: 450. (Same as Psychology 459.)
460 Evolution (4) Principles, facts, and theories regarding biological evolution. Concepts, processes and product in development of organic diversity. Historical development of ideas concerning biological evolution. 3 hours and 2 hours lab/discussion. Prereq: Biology 240 or consent of instructor.

461 Special Topics in Organismal Biology (3) Evolution, ecology, biogeography, classification, and anatomy of selected animal and plant taxa. Prereq: Biology 250 or consent of instructor. May be repeated if topic differs. Maximum 12 hours.

470 Aquatic Ecology (3) Introduction to the physiochemical nature of inland waters with description of biotic communities and their interrelationships. 2 hours and 1 lab. Prereq: Chemistry 120-130, Biology 250.

474 Ichthyology (4) Evolution, classification, collection and identification, distribution and biology of fishes; freshwater fauna of Eastern North America. 2 hours and 2 labs. Prereq: Biology 250 or consent of instructor.

484 Conservation Biology (3) Application of principles and techniques of ecological research to conservation of biological diversity at genetic, population, community, and ecosystem levels. Prereq: Biology 240, 250.

500 Thesis (1-15) P/NP only.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

503 Ecology and Evolutionary Biology Seminar (1) Advanced topics in ecology, behavior, and evolutionary biology. Senior departmental majors encouraged. Required of all first- and second-year graduate students. May be repeated. Maximum 4 hours. Satisfactory/No Credit grading only.

504 Special Topics (1-3) Selected directed readings or special course in topics of current interest. Consult departmental listing for offerings. May be repeated with consent of instructor. Maximum 9 hours. Satisfactory/No Credit grading only.

508 Introduction to Faculty Research (1) Orientation of new graduate students to current research of departmental faculty. Prereq: Admission to program in Ecology and Evolutionary Biology. Required of all first-year students. Satisfactory/No Credit grading only.

509 Foundations: Readings in Ecology (1-2) Readings and discussion of classic papers in field.

511 Foundations: Readings in Evolution (1-2) Readings and discussion of classic papers in field.

512 Foundations: Readings in Conservation Biology (2) Readings and discussion of classic papers in field.

514 Foundations: Readings in Mathematical and Computational Ecology (2) Readings and discussion of classic papers in field.

515 Foundations: Readings in Environmental Toxicology (1-2) Readings and discussion of classic papers in field.

516 Colloquium in Ethology (1) (Same as Psychology 516.)

520 Ecology for Planners and Engineers (3) Ecological principles and effects that human-caused changes have on living organisms. Lectures and field trips. Appropriate for students in Planning and Environmental Engineering. Not intended for graduate students in Ecology and Evolutionary Biology.

524 Physiological Ecology of Animals (3) Adaptive physiological response of animals to natural changes in or extremes of physical and biotic environment. Terrestrial vertebrates. Prereq: Undergraduate courses in animal physiology and ecology, Biochemistry and Cellular and Molecular Biology 440 and Biology 250 or equivalent.

535 Ecology and Development in the Amazon (3) Natural history, ecosystem diversity and function, and opportunities for sustainable economic development in the Amazon Basin. Includes field trip of 7-10 days to Manaus, Brazil.

540 Insect Taxonomy I: Major Orders (3) Survey of classification of major orders of insects, with practical experience in identification of insects at family level. 4 hours combined lecture and lab. Prereq: Consent of instructor.

541 Insect Taxonomy II: Minor Orders (3) Survey of classification of minor orders of insects, with practical experience in identification of insects at family level. 4 hours combined lecture and lab. Prereq: 540 or consent of instructor.

542 Insect Structure and Function (3) Integrated study of morphology and physiology at tissue and cellular level of insects. Prereq: Consent of instructor.

543 Aquatic Insects (3) Taxonomy and biology of aquatic insects; immature forms. 2 hours and 1 lab. Prereq: Consent of instructor.

544 Fresh Water Invertebrate Zoology (3) Ecology and taxonomy of fresh water invertebrates exclusive of insects. 3 hours lab and field study. Prereq: Comparative Invertebrate Biology or equivalent and consent of instructor.

545 Advanced Animal Behavior (3) Second-level course in ethology, stressing evolution, genetics, physiology, ecology and human behavior. Prereq: 450 or equivalent. (Same as Psychology 545.)

546 Ethological Psychology (3) (Same as Psychology 546.)

547 Conceptual Foundations of Evolution and Behavior (3) (Same as Psychology 547.)

552 Development Planning in the Third World (3) (Same as Planning 552.)

555 Environmental Planning (3) (Same as Planning 555.)

556 Ice-Age Environments and Global Climate Change (3) Glacial-interglacial climatic cycles and dynamic responses of landscapes within glacial, periglacial, and non-glacial environments across North America over past 2.5 million years. (Same as Geology 556.)

557 Quaternary Ecology (3) Perturbation, process, and pattern within Quaternary ecosystems; climatic change and vegetational response during last 2.5 million years. Prereq: Consent of instructor. (Same as Geology 557.)

560 Biometry (3) Statistical applications in biological research. Prereq: Statistics course or consent of instructor.

561 Environmental Toxicology (3) Basic concepts in toxicology; molecular toxicology and detoxification; reproductive toxicology; mutagenesis, teratogenesis, carcinogenesis, pathologic changes and environmental impact. Prereq: Biochemistry and Cellular and Molecular Biology 410, Organic Chemistry or consent of instructor. (Same as Biochemistry and Cellular and Molecular Biology 561.)

575 Ecological Genetics (3) Genetics of natural populations, using both single-locus and quantitative genetic approaches. Prereq: Statistics course.

577 Landscape Ecology (3) Ecological structure, function, and change through time of landscape mosaics: quantitative measures of landscape heterogeneity; responses of organisms to changes in landscape heterogeneity. Prereq: Biology 250 or equivalent or consent of instructor.

581-582 Mathematical Ecology (3,3) (Same as Mathematics 581-582.)

583 Zoogeography (3) Processes determining geographic distribution of animals and distribution and composition of animal communities. Prereq: Ecology course or consent of instructor.

585 Mathematical Evolutionary Theory (3) (Same as Mathematics 585.)

591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences.

599 Advanced Evolutionary Ecology (3) (Same as Botany 599.)

600 Doctoral Research and Dissertation (3-15) P/NP only.

602 Advanced Topics in Ecological Process and Structure (1-3) Exposure and in-depth training in contemporary topics and approaches important to advanced research in ecological process and structure. Consult departmental listing for offerings. May be repeated with consent of department. Maximum 9 hours.

603 Advanced Topics in Evolutionary Ecology (1-3) Exposure and in-depth training in contemporary topics and approaches important to advanced research in evolutionary biology. Consult departmental listing for offerings. May be repeated with consent of department. Maximum 9 hours.

604 Advanced Topics in Conservation Biology (1-3) Exposure and in-depth training in contemporary topics and approaches important to advanced research in conservation biology. Consult departmental listing for offerings. May be repeated with consent of department. Maximum 9 hours.

606 Advanced Topics in Ecological Process and Structure (1-3) Exposure and in-depth training in contemporary topics and approaches important to advanced research in ecological process and structure. Consult departmental listing for offerings. May be repeated with consent of department. Maximum 9 hours.

607 Seminar in Ecology and Evolutionary Biology (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hours.

609 Advanced Topics in Comparative Animal Behavior (1-3) Exposure and in-depth training in contemporary topics and approaches important to advanced research in animal behavior. Consult departmental listing for offerings. May be repeated with consent of department. Maximum 9 hours.

610 Advanced Topics in Mathematical, Theoretical and Computational Ecology (1-3) Exposure and in-depth training in contemporary topics and approaches important to advanced research in mathematical, theoretical, and computational ecology. Consult departmental listing for offerings. May be repeated with consent of department. Maximum 9 hours.

611 Advanced Topics in Organismal Biology (1-3) Exposure and in-depth training in contemporary topics and approaches important to advanced research in organismal biology. Consult departmental listing for offerings. May be repeated with consent of department. Maximum 9 hours.
612 Advanced Topics in Environmental Toxicology (1-3) Exposure and in-depth training in contemporary topics and approaches important to advanced research in environmental toxicology. Consult departmental listing for offerings. May be repeated with consent of department. Maximum 9 hours. *(Same as Biochemistry and Cellular and Molecular Biology 612.)*

635 Environmental Assessment and Sustainable Development in Third World Countries (3) Concepts and methods of environmental impact assessment and risk assessment. Sustainable development concepts and issues in developing countries. The role of risk and impact assessment in achieving sustainable development. Prereq: Biology 250 or equivalent. *(Same as Botany 635: Planning 635.)*

681-682 Advanced Mathematical Ecology (3,3) *(Same as Mathematics 681-682.)*

**Department of ENGLISH**

[http://web.utk.edu/~english/](http://web.utk.edu/~english/)

**John P. Zomchick, Head**

**Misty G. Anderson, Graduate Liaison**

**Professors**

Carroll, D.A. (J. Douglas Bruce Professor), PhD ................. North Carolina

Cox, D.R., PhD .......................................................... Missouri

Dumas, B.K., PhD ......................................................... Arkansas

Dunn, A.R., PhD .......................................................... Washington

Ensor, A.R., PhD .......................................................... Indiana

Finneran, R. J. (John C. Hodges Professor), PhD ................. North Carolina

Garner, Jr., S.B. (Young Professor), PhD ............................. Princeton

Goslee, D.F., PhD ......................................................... Yale

Goslee, N.M. (Alumni Distinguished and Young Professor), PhD ......... Yale

Hefnerman, T.J.A. (Curry Professor), PhD ................................ Cambridge

Kalven, M., PhD ............................................................ Rutgers

Keene, M.A., PhD ......................................................... Texas

Kelly, R.M. (Young Professor), PhD ....................................... Duke

Leggett, B.J. (Humanities Professor), PhD .............................. Florida

Leki, I., PhD ................................................................. Illinois

Lofaro, MA, PhD ........................................................... Maryland

Maland, C, PhD ............................................................. Michigan

Smith, A., PhD .............................................................. Houston

R.E. Stillman, PhD .......................................................... Pennsylvania

Trahern, Jr., J.B. (Alumni Distinguished Professor), PhD ........... Princeton

Wier, A., MFA ............................................................... Bowing Green

Zomchick, J.P., PhD ....................................................... Columbia

**Associate Professors**

Anderson, M.G., PhD .................................................... Vanderbilt

Atwill, J.M., PhD ........................................................... Purdue

Elias, A.T., PhD .............................................................. Penn State

Firsel, R., PhD .............................................................. Rensselaer Polytechnic Institute

Howes, L.L., PhD .......................................................... Columbia

Jennings, L.D., PhD ........................................................ North Carolina

Papke, M.E., PhD .......................................................... McGill (Canada)

**Assistant Professors**

Billone, A.C., PhD ....................................................... Princeton

Black, J.L., PhD ............................................................ Toronto

Haddox, T.F., PhD ......................................................... Vanderbilt

Hirschfeld, H.A., PhD ..................................................... Duke

Ikard, D., PhD ............................................................. Wisconsin

Knight, M., MFA ............................................................ Virginia

Reiff, M.J., PhD ............................................................ Kansas

Schoenbuch, L.M., PhD .................................................. Virginia

Seshagiri, U., PhD ........................................................ Illinois

Thaggert, M., PhD ......................................................... (California) Berkeley

**Lecturers**

Barrow, R., PhD .......................................................... Iowa

Burton, J.C., PhD ......................................................... State University of New York (Stony Brook)

Capps, S.E., PhD ........................................................ Tennessee

Christie, P.P., PhD ........................................................ Tennessee

Druban, E.K., MA ........................................................ Tennessee

Edwins, J.A., PhD ......................................................... Tennessee

Forsythe, M.L., MA ......................................................... Tennessee

Hardwig, M.R., PhD ..................................................... Tennessee

Hardwig, W.J., PhD ....................................................... Florida

Harris, S.C., PhD ........................................................ Tennessee

Havens, K.L., PhD ........................................................ Tennessee

Huk, P., PhD ............................................................... Southern California

Hussein, A., PhD ........................................................ Tennessee

Hyman, K., PhD ........................................................ Illinois (Chicago)

Knox, L., MA ............................................................... Indiana

Larsen, W.B., PhD ........................................................ Tennessee

McDowell, M.R., MA ..................................................... Tennessee

McKinstry, D.K., PhD .................................................... Tennessee

Melton-Summer, S.E., PhD ............................................. Tennessee

Meredith, E.G., MA ........................................................ Tennessee

Morgan, T., PhD .......................................................... State University of New York (Buffalo)

Pearson, F.M., MA ........................................................ Tennessee

Peavler, J.L., MA ........................................................ Tennessee

Preston, N.H., PhD ........................................................ Tennessee

Renfroe, M.M., PhD ..................................................... Tennessee

Robertson, K.C., MA ........................................................ Tennessee

Sawalski, S., PhD ........................................................ South Carolina

Spirkok, R.L., PhD ........................................................ North Carolina

Stafford, A.A., PhD ........................................................ Pittsburgh

Thompson, P., PhD ........................................................ Louisiana State

Tomlinson, J.A., MA ........................................................ Tennessee

Tuc, K., MA ................................................................. Tennessee

Wilhelm, R., PhD ........................................................ Tennessee

Yost, R., MA ............................................................... Tennessee

**Permanent Part-Time Lecturers**

Berry, L.C., MA ............................................................ Tennessee

Tschantz, PA., MA ........................................................ New Mexico State

**Writing Center Director**

Edwins, J.A., PhD ........................................................ Tennessee

**MAJOR DEGREES**

**English** ............................................................... MA, PhD

The Department of English offers the Master of Arts and the Doctor of Philosophy degrees with a major in English. Thesis and non-thesis options are available for the MA, as well as a special concentration in writing. The department also offers a creative writing dissertation option in the doctoral program.

Detailed information about the master’s and doctoral programs, and about individual graduate courses, may be obtained by writing the Director of Graduate Studies in English, 306 McClung Tower. A prospective student must contact the department to receive the proper information and forms with which to apply. For additional information, please visit the graduate Web site through the College of Arts and Sciences home page at www.artssci.utk.edu.

The Department of English does not accept students in non-degree or provisional status. A student who wishes to enter the department must apply in degree-seeking status for his/her application to receive consideration for admission to any graduate program in English.

**MASTER OF ARTS**

**English Major**

**REQUIREMENTS**

A minimum of 24 semester hours in English beyond the BA to include 6 hours at the 600 level; 12 additional hours at the 500-600 level (Only 3 hours of 593 Independent Study may be applied toward the MA); and 6 hours for graduate credit at any level, including the 400 level. In this coursework, students must maintain at least a 3.0 GPA.
Thesis Option
Written under the direction of a faculty member of the department and approved by a committee of two other faculty members. Six semester hours of credit will be given.

Non-Thesis Option
Six hours of additional courses at the 500-600 level, making a total of 30 hours of required coursework.

Language Requirement
Evidence of proficiency in one foreign language, to be fulfilled in one of the following ways:

- Completion of the second year of a language at college level with a grade of C or better.
- Completion of French 302 or German 332 at the University of Tennessee, Knoxville, with a grade of B or better.
- Passing of the regular PhD foreign language examination as currently administered at the University of Tennessee, Knoxville.

Capstone Experience Requirement
An integral part of all options in the master’s degree program in English is a capstone experience which allows the student to synthesize and apply the knowledge and skills gained through the completion of the program in a substantial way. Examples of capstone experiences include, but are not limited to, the completion of a thesis or the formal public presentation of a paper at a professional meeting or departmental colloquium. All capstone experiences normally occur after the completion of 24 hours of coursework and must be approved by the Director of Graduate Studies.

Final Examination
A candidate presenting a thesis must pass a one-hour oral examination; a candidate presenting a creative project must pass a ninety-minute oral examination. The examination consists of a short thesis defense, but chiefly of questions covering the general history of English and American literature, not merely the coursework taken. A reading list of primary works designed to help the student prepare for these questions is available in the office of the Director of Graduate Studies in English.

A non-thesis student must pass a written examination, followed by a one-hour oral examination, both consisting of the same sort of questions as the examination taken by the thesis student.

Residence Requirement
There is no residence requirement for the MA, but students should attempt to pursue a full-time program whenever possible.

Writing Concentration
The master’s program with writing concentration is intended for those students who plan to do free-lance writing, specialize in teaching writing courses at the college level, or work as professional writers in business or industry.

Requirements
The requirements for the writing concentration are the same as those for the thesis option above with the following exceptions:

Coursework
Writing students may substitute two 400-level writing courses for two 500-level courses. Students must take at least 9 hours in writing and 9 in literature, the remaining 6 to be selected from any English courses at the proper level. Of the courses in writing, at least 3 hours must be taken at the 500 level; additional 500-level courses are strongly recommended.

Writing Project
One of the following writing projects for six hours of credit:

- A thesis, using research to analyze some aspect of writing or rhetorical theory
- A creative project, such as a collection of poems or short stories, a short novel, a play, or a creative work of non-fiction prose

The nature and length of each project will be determined by the Director of Graduate Studies after consulting with the student and the project director. In addition to the director, two other English Department faculty members will supervise and approve the project; at least one should be from the literature faculty.

Final Examination
The reading list may be modified by the MA examining committee, meeting as a body with the student, to reflect the candidate’s particular writing emphasis. However, most of the oral examination should focus upon the literature outlined in the original reading list.

Doctor of Philosophy
English Major

Requirements
A student must successfully complete a program of study, normally six full semesters as outlined below, approved by the candidate’s committee or the Director of Graduate Studies in English.

Coursework
At least 54 semester hours beyond the BA (of which at least 24 semester hours must be beyond the MA) to include at least 21 semester hours at the 600 level; at least 15 semester hours at the 500 level or above (only 3 hours of 593 Independent Study may be applied toward the MA and 3 after the MA); a 3-hour course in teaching composition; and 15 additional hours at any level approved for graduate credit (including a maximum of 12 hours at the 400 level if approved by the Director of Graduate Studies).

Up to six of these additional hours may be taken in some cognate field or fields such as history, philosophy, French. These courses must be drawn from those approved for graduate credit. All other coursework must be in the English department. In this coursework, students must normally maintain a 3.5 GPA.

Dissertation
Twenty-four semester hours of dissertation. These represent the research for and writing of the dissertation. The research and dissertation will be directed by a faculty member of the department and approved by a doctoral committee of three or four other faculty members.
Language Requirement
A language requirement met in one of the following ways:

- Two languages approved by the Director of Graduate Studies in English. The requirement for each language may be fulfilled by (a) completion of French 302 or German 332 with a grade of B or better; (b) completion at the University of Tennessee, Knoxville, of any two courses on the 300 level or above in the foreign language or literature with at least a grade of B in each course; (c) passing of the regular PhD foreign language examination as currently administered at the University of Tennessee, Knoxville.

- One modern language approved by the Director of Graduate Studies in English. This requirement must be fulfilled by a passing grade on the language examination given by the University of Tennessee, Knoxville, and completion of two courses given in the foreign language at the 400 level or above, at least one course to be at the 500- or 600-level. A minimum grade of B must be received in each course.

- One modern language approved by the Director of Graduate Studies in English and intensive study of the English language. This requirement must be fulfilled by completion of (a), (b), or (c) for one foreign language; and completion of 6 semester hours in English language courses with grades of B or better, at least three of which must be from English 508 or 509 History of the English Language (offered in alternate years only). For the other 3 hours, the student may either complete the history of the language sequence or choose one other course in language taught in the Department of English at the 500- or 600-level and approved by the Director of Graduate Studies in English. These courses will not count toward the minimum number of courses for the PhD, and anyone electing this language option may not take the comprehensive examination in linguistics.

Examinations
A four-hour qualifying examination taken before the end of the first year of PhD coursework; this examination is given three times a year, with the MA written examination; a comprehensive written examination which may be divided as the department directs; see the English Department graduate brochure. The comprehensive examination is given twice a year, normally in March and September. Before a student may take it, he/she must have completed all coursework required. A student must also have met all requirements for foreign languages before beginning the first part of the examination.

Dissertation Defense
A one-hour examination on the dissertation and other related areas.

Residence Requirement
Two consecutive semesters as a full-time student. For students not on teaching assistantships, full-time consists of nine or more hours of coursework and/or dissertation hours each semester. For students on assistantships, full-time consists of at least six hours of courses and/or dissertation hours and three hours of teaching each semester.

GRADUATE COURSES

English (339)
Students enrolling in English graduate courses must first register in the office of the Director of Graduate Studies in 306 McClung Tower.

401 Medieval Literature (3) Reading and analysis of selected medieval literary masterpieces in modern English.
402 Chaucer (3) Reading and analysis of Canterbury Tales and Troilus and Criseyde in Middle English.
404 Shakespeare I: Early Plays (3) Shakespeare’s dramatic achievement before 1601. Reading and discussion of selected plays from romantic comedies, including Twelfth Night; English histories, including Henry IV; and early tragedy, including Hamlet.
405 Shakespeare II: Later Plays (3) Shakespeare’s achievement between 1601 and 1613. Reading and discussion of selected plays from great tragedies, including Othello; problem plays, including Measure for Measure; and dramatic romances, including The Tempest.
406 Renaissance Drama (3) English theatre between 1590 and 1640 through study of representative plays by Shakespeare’s contemporaries: Marlowe, Webster, Jonson.
409 Spenser and his Contemporaries (3) Principal achievements in prose and poetry of sixteenth century authors; Spenser, Wyatt, Marlowe, More, Sidney, and Bacon.
410 Milton, Donne and their Contemporaries (3) Principal achievements in prose and poetry of first two-thirds of seventeenth century: poetry of Milton, Donne, Marvell; and prose of Browne, Bacon, Walton.
411 Literature of Restoration and Early Eighteenth Century: Dryden to Pope (3) Survey of English literature and culture from 1660 to 1745.
412 Literature of Later Eighteenth Century: Johnson to Burns (3) Survey of English literature and culture from 1745 to 1800.
413 Restoration and Eighteenth-Century Genres and Modes (3) A major genre or literary mode: drama, novel, poetry, non-fiction prose, satire, romance, or epic, written between 1660 and 1800. May be repeated.
414 Romantic Poetry and Prose I (3) Wordsworth, Coleridge, and Blake; readings from Lamb, De Quincey, and other prose writers.
415 Romantic Poetry and Prose II (3) Keats, Shelley and Byron; readings from Hazlitt, Peacock, and other prose writers.
416 Early Victorian Literature (3) May include poetry by Tennyson and the Brownings; prose by Carlyle, Newman, and Mill.
419 Later Victorian Literature (3) May include poetry by the Pre-Raphaelites, Arnold, Hopkins, and Hardy; prose by Arnold, Ruskin, and Carroll; plays by Gilbert and Wilde.
420 The Nineteenth-Century British Novel (3) Scott to Hardy.
421 Modern British Novel (3) Works from authors such as Joyce and Woolf through contemporary British fiction writers.
422 Women Writers in Britain (3) Literary consciousness and works of women writers in Britain. Topics vary: Marie de France, Margery Kempe, Aemilia Lanyer, Elizabeth Cary, Aphra Behn, Frances Burney, Mary Wollstonecraft, Mary Shelley, George Eliot, Virginia Woolf, and Doris Lessing. May be repeated. Maximum 6 hours. (Same as Women’s Studies 422.)
423 Colonial and Postcolonial Literature (3) Emphasis on historical and theoretical methodologies for reading colonial and postcolonial literature. May be repeated once with instructor’s consent.
431 Early American Literature (3) From earliest texts to 1830: exploration and discovery, Native American, colonial, revolutionary, and early national works.
432 American Romanticism and Transcendentalism (3) Prose and poetry of American Renaissance, from c. 1830 to end of the Civil War: Cooper, Poe, Hawthorne, Melville, Emerson, Thoreau, Stowe, Douglass, Whitman, and Dickinson.
433 American Realism and Naturalism (3) Literature from time of the Civil War to World War I: Twain, Howells, James, Jewett, Freeman, Crane, and Norris.
434 Modern American Literature (3) World War I to present.
435 American Novel before 1900 (3) From earliest sentimental novels through Brown and Cooper, and major figures to 1900: Hawthorne, Melville, Stowe, Clemens, and James.
441 Southern Literature (3) Southern writing from colonial period into twentieth century: frontier humorists, local color writers, and Southern literary renaissance.

442 American Humor (3) Early nineteenth century into twentieth century: Mark Twain.

443 Topics in Black Literature (3) Contents vary: particular genres, authors, or theories from 1845 to present: Langston Hughes and Harlem Renaissance, Richard Wright and Gwendolyn Brooks, writing by Black women, international Black literature in English, and Black-American autobiography. (Same as African and African-American Studies 443.)

451 Modern British and American Poetry (3) From Yeats and Frost to Auden, Stevens, and more recent poets.

452 Modern Drama, 1880-1945 (3) Survey of British, American, and international drama from the advent of modern drama to the end of World War II. (Same as Comparative Literature 452.)

453 Contemporary Drama (3) Survey of British, American, and international drama since World War II.

454 Twentieth-Century International Novel (3) Fiction in English translation from such writers as Kafka and Camus through contemporary authors. (Same as Comparative Literature 454.)

455 Persuasive Writing (3) Writing and analyzing persuasive texts in public, private, and academic contexts. Prereq: 355 or consent of instructor.

456 Contemporary/Postmodern Literature (3) Studies in literature written after World War II. Content will vary. May be repeated with consent of instructor. Maximum 6 hours.

460 Technical Editing (3) Editing technical material for publication. Principles of style, format, graphics, layout, and production management. Prereq: 360 or consent of instructor.

462 Writing for Publication (3) Principles and practices of writing for publication. Dissertation, theses, articles, and reports in science and technology. Prereq: 360 or consent of instructor.

463 Advanced Poetry Writing (3) Further development of skills acquired in basic writing poetry course. Prereq: 363 or consent of instructor.

464 Advanced Fiction Writing (3) Further development of skills acquired in basic writing fiction course. Prereq: 365 or consent of instructor.

466 Writing, Layout, and Production of Technical Documents (3) Principles of design for desktop publishing. Production of various documents to be incorporated into professional portfolio. Prereq: 360 or consent of instructor.

470 Special Topics in Rhetoric (3) Topics vary. Prereq: 355 or consent of instructor. May be repeated with consent of department. Maximum 6 hours.

471 Sociolinguistics (3) Study of language in relation to society. Empirical and theoretical focus. Large-scale units: tribes, nations, social groups. Prereq: 371 or 372 or Linguistics 200 or consent of instructor. (Same as Linguistics 471; Sociology 471.)

472 American English (3) Phonological, morphological, and syntactic characteristics of major social and regional varieties of American English; origins, functions, and implications for cultural pluralism. Prereq: 371 or 372 or Linguistics 200 or consent of instructor. (Same as Linguistics 472.)

474 Teaching English as a Second or Foreign Language I (3) Major issues surrounding teaching ESL/EFL: political implications of teaching ESL/EFL; introduction to second language acquisition; learner variables in language learning; traditional and innovative approaches to ESL/EFL; basic features of American English grammar necessary for teaching ESL. Prereq: Second year of foreign language or consent of instructor. (Same as Linguistics 474.)

475 Teaching English as a Second or Foreign Language II (3) Issues, principles, and techniques in teaching grammar, speaking, pronunciation, reading, and writing in ESL/EFL. Observations and teaching practice in ESL classes and development of ESL materials and tests. Prereq: 474. (Same as Linguistics 475.)

476 Second Language Acquisition (3) How humans learn second languages. Theoretical models and research; differences between first and second language acquisition; learner variables; socio-cultural factors; and implications for second foreign language instruction. (Same as Linguistics 476.)

477 Pedagogical Grammar for ESL Teachers (3) Aspects of English syntax and morphology presenting difficulties for non-native learners of English. Basic and complex sentence structures; noun and article system; and verb tense, aspect, modality, and complementation. (Same as Linguistics 477.)

479 Literary Criticism (3) Historical survey of major works of literary criticism.


481 Studies in Folklore (3) Topics vary. May be repeated with different topic. Maximum 6 hours.

482 Major Authors (3) Content varies. Concentrated study of at least one of the most influential writers in British or American literary history: e.g., Donne, Pope, Austen, Tennyson, Whitman, Faulkner, Lawrence, Baldwin, or Morrison.

483 Special Topics in Literature (3) Topics vary. May be repeated. Maximum 6 hours.

484 Special Topics in Writing (3) Original writing integrated with reading, usually taught by professional author. Topics vary. May be repeated. Maximum 6 hours.

485 Special Topics in Language (3) May be repeated. Maximum 6 hours with consent of department. (Same as Linguistics 485.)

486 Special Topics in Criticism (3) Content varies. Theoretical and practical approaches to British and American literature. May be repeated with consent of department. Maximum 6 hours.

489 Special Topics in Film (3) Content varies. Particular directors, film genres, national cinema movements, or other topics. May be repeated with consent of department. Maximum 6 hours. (Same as Cinema Studies 489.)

490 Language and Law (3) Language in Anglo-American legal process: focus on differences between spoken and written language; lexical and syntactic ambiguity; pragmatics; speech act analysis; and language rights of linguistic minorities. Prereq: 371 or 372 or consent of instructor. (Same as Legal Studies 490; Linguistics 490.)

495 Introduction to Rhetoric and Composition (3) Historical, theoretical, and empirical modes of inquiry in rhetoric and composition and implications for teaching of composition. Prereq: 355 or consent of instructor.

496 Rhetoric of Legal Discourse (3) Application of basic principles of persuasive writing to legal materials. Issue identification and argument through written position papers, briefs, and memoranda. Critical reading and discussion. Introductory research techniques. No prior legal knowledge necessary. Prereq: 355 or consent of instructor. (Same as Legal Studies 496.)

500 Thesis (1-15) P/NP only.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfaction/No Credit grading only.

505 Teaching Freshman Composition (3) Introduction to teaching Freshman English through study of various techniques and philosophies of composition. Required of all first-year teaching associates.

506 Introduction to Literary Research (3) Critical examination of aims of English studies, profession of English teacher, theory of literature, and methods of research: collecting of information, evaluation of material, and transmitting of results of scholarship.

507 Applied Criticism: The Rhetoric of Literary Forms (3) Study and application of ways in which major critics have analyzed form in poetry and prose fiction. May be repeated. Maximum 6 hours.

508 History of the English Language I (3) Phonological, morphological, and syntactic development of English language from Old and Middle English.

509 History of the English Language II (3) Phonological, morphological, and syntactic development of the English language with concentration on developments after 1500, especially in American English.

513-514 Readings in Medieval Literature (3,3) Reading and analysis of selected masterpieces of Old and Middle English literature and their Continental sources in Modern English. May be repeated. Maximum 9 hours each.

520-521 Readings and Analysis in Selected Areas of Twentieth- and Nineteenth-Century Prose, Poetry, and Drama (3,3) Content varies: genre; theme, literary movement, or other coherent emphasis. May be repeated. Maximum 9 hours each.

530-531 Readings in English Literature of the Restoration and Eighteenth Century (3,3) Topics vary. Genres: poetry, prose, fiction, drama; or period: Restoration, earlier eighteenth century, later eighteenth century. May be repeated. Maximum 9 hours each.

540-541 Readings in English Literature of the Nineteenth Century I and II (3,3) Content varies: genre, theme, literary movement, or other coherent emphasis. May be repeated. Maximum 9 hours each.

550-551 Readings in American Literature (3,3) Content varies: genre, theme, literary movement, or other coherent emphasis. May be repeated. Maximum 9 hours.

552 Readings in Black American Literature (3) Content varies: genre, theme, literary movement, or other coherent emphasis. May be repeated. Maximum 9 hours.
560-561 Readings in Twentieth-Century Literature (3,3) Content varies: genre, theme, literary movement, or other coherent emphasis. May be repeated. Maximum 9 hours each.

576 Introduction to Contemporary Criticism (3) Introductory survey of twentieth-century literary criticism from New Criticism to present.

580 Fiction Writing (3) Advanced fiction projects under supervision of instructor and time for independent study. Prereq: Extensive background in reading and writing fiction. May be repeated. Maximum 6 hours.

581 Colloquium in Poetry Writing (3) Major poetic project or continuation of project begun in 463. Individual consultation with instructor supplements class analysis; readings in contemporary poetry and theory. Prereq: 463 or consent of instructor. May be repeated. Maximum 6 hours.

582 Special Topics in Writing (1-3) Topics vary. May be repeated. Maximum 6 hours. Enrollment by consent of director of graduate studies only.

583 Special Topics in Literature (3) Topics vary: genres, modes, and other literary subjects not in standard period divisions. May be repeated. Maximum 6 hours.

584 Topics in Feminist Studies (3) Topics vary. May be repeated. Maximum 9 hours.

585 Issues in Invention, Style, and Audience (3) Theoretical perspectives on contemporary research in rhetoric and composition.

586 History of Rhetoric I (3) Survey of rhetoric from Sophists to Ramus.

587 History of Rhetoric II (3) Survey of rhetoric from Bacon to present.

588 Readings in Applied Rhetoric (3) Content varies: Writing across curriculum, writing centers, technical communication, text linguistics. May be repeated. Maximum 6 hours.

589 Special Topics in Language (3) Topics vary. May be repeated. Maximum 6 hours.

590 Topics in Critical Theory (3) Topics vary. May be repeated. Maximum 9 hours.

591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences.

594 Film History, Form, and Analysis (3) Issues in film studies: history of narrative film; concept of film form; critical approaches to film study (genre, author, formalist, and others); and critical analysis of individual films.

600 Doctoral Research and Dissertation (3-15) P/NP only.

610 Studies in Old English Language and Literature (3) Old English grammar with readings in prose and poetry.

611 Studies in Beowulf (3) Translation and critical study of Beowulf. Prereq: English 610 or consent of instructor.

620 Studies in Medieval English Literature (3) Seminar in literature and literary genres of Medieval English literature, read in Old and Middle English. Subject matter varies from year to year. May be repeated. Maximum 9 hours.

621 Studies in Chaucer (3) Seminar in text, interpretation, and criticism of Chaucer’s writings. Prereq: Previous course in Chaucer. May be repeated. Maximum 6 hours.


640-641 Studies in Restoration and Eighteenth-Century Literature (3,3) Topics vary. Swift, satire, restoration literature, Johnson and Boswell, Addison and Steele, restoration drama, Dryden. May be repeated. Maximum 9 hours each.

650 Studies in English Romanticism (3) Seminar content varies: particular literary figure or figures, genres, theme, or other coherent focus. May be repeated. Maximum 9 hours.

651-652 Studies in Victorian Literature (3,3) Seminar content varies: particular literary figure or figures, genres, theme, or other coherent focus. May be repeated. Maximum 9 hours each.

660-661-662 Studies in American Literature (3,3,3) Southern literature before 1830, frontier, regionalism, women’s literature, Irving, Cooper, Poe, Emerson, Thoreau, Hawthorne, Melville, Whitman, Dickinson, James, and Twain. May be repeated. Maximum 9 hours each.

670-671-672 Studies in Twentieth-Century Literature (3,3,3) Seminar content varies: particular literary figure or figures, genres, theme, or other coherent focus. May be repeated. Maximum 9 hours each.

680 Topics in English Language (3) May be repeated with consent of director of graduate studies. Maximum 9 hours.

682 Studies in Rhetoric and Composition (3) Content varies. Advanced work in theory and/or history of rhetoric and composition. Issues in invention, textuality, literacy, historiography, style and ethics. May be repeated. Maximum 9 hours.

686 Studies in Creative Writing (3) Content varies. Connection between theory and practice in writing. May be repeated. Maximum 9 hours.

688 Studies in Literary Criticism (3) Content varies. Advanced work in theory and history of literary criticism. May be repeated. Maximum 9 hours.

690 Special Topics (3) Content varies. History of ideas, humor, biography, autobiography, extra-literary disciplines. May be repeated. Maximum 9 hours.

694 Studies in Film (3) Content varies. Advanced work in film history and analyses. May be repeated. Maximum 6 hours.

Department of GEOGRAPHY

http://web.utk.edu/~utkg/geo/

Bruce A. Ralston, Head
Sidney R. Jumper, Graduate Liaison

Professors

Aiken, C.S., PhD .............................................. Georgia
Bell, T.L., PhD .............................................. Iowa
Brown, R.A., PhD .............................................. Rutgers
Harden, C.P., PhD .............................................. Colorado (Boulder)
Horn, S.P., PhD .............................................. California (Berkeley)
Jumper, S.R., PhD .............................................. Tennessee
Kinkel, C.W., PhD .............................................. Syracuse
Pulipher, L.M., PhD .............................................. Southern Illinois
Rialston, B.A., (Head), PhD .............................................. Northwestern
Rehder, J.B., PhD .............................................. Louisiana State

Associate Professors

Orvis, K., PhD .............................................. California (Berkeley)
Shaw, S.L., PhD .............................................. Ohio State

Assistant Professors

Drever, A., PhD .............................................. California (Los Angeles)
Grisino-Mayer, H., PhD .............................................. Arizona

Adjunct Faculty

Blasing, T.J., PhD .............................................. Wisconsin
Brown, MA, PhD .............................................. Ohio State
Gripshover, M.M., PhD .............................................. Tennessee
Harrison, G., PhD .............................................. Tennessee
Liu, C., PhD .............................................. Tennessee
McKown, R., PhD .............................................. Oregon
Tankersley, R.D., PhD .............................................. Tennessee
Wilbanks, T.J., PhD .............................................. Syracuse

MAJOR DEGREES

Geography ................................................................ MS, PhD

The department offers the Master of Science and Doctor of Philosophy degrees. The master’s degree emphasizes development of professional competence as a geographer and offers opportunities to gain substantial depth in a concentration or a major technique. An emphasis in geographic information science is available for students who have appropriate backgrounds in mathematics and computer science. The doctoral program is for those who have demonstrated proficiency in conducting independent research. The department is particularly well-qualified to direct graduate work in location analysis, transportation geography, urban and rural geography, cultural ecology, and the geography of the natural environment (especially biogeography and geomorphology). The faculty is qualified to direct students from a variety of approaches ranging from historical and humanistic to rigorously analytic and GIS-based.
GRADUATE COURSES

Geography (415)

410 Global Positioning Systems and Geographic Data (3) Theory, field and laboratory use of Global Positioning Systems for capturing digital geographic data; management of geographic data; coordinate systems, datum issues, scavenging and digitizing, map standards, and uncertainty in Geographic Information Systems. 2 hours and one 2 hour lab.

411 Computer Mapping and Geographic Information Systems (3) Concepts, management, and presentation of digital data for spatial analysis: cartographic data structures. 2 hours and one 2 hour lab. Prereq: 310 or consent of instructor.

412 Advanced Cartography Techniques (3) Cartographic design and data display techniques for reference and thematic maps. Basic principles and methods of map reproduction. 2 hours and 2 labs. Prereq: 310 or consent of instructor.

413 Remote Sensing: Types and Applications (3) Principles and uses of remote sensing imagery, digital data, and spectral data: geometric interpretation and mapping techniques. Prereq: 310 or consent of instructor.

415 Quantitative Methods in Geography (3) Geographic application of statistical techniques, point pattern analysis, and analysis of areal units. Prereq: Mathematics 115 or Statistics 201 or consent of instructor.

421 Geography of Folk Societies (3) Geographical study of folk culture, traditional material culture and rural settlement, examples from eastern North America and selected foreign areas.

423 Geography of American Popular Culture (3) Geographical study of popular cultures, youth cultures in United States. (Same as American Studies 423.)

432 Dendrochronology (4) Principles, techniques, and interpretation in tree-ring science. Applications in geography, climate, ecology, forestry, archaeology, and earth sciences. 3 hours and 2 hours lab per week. Prereq: 131-132 or consent of instructor.

433 The Land-Surface System (3) Characteristics of surface form, water, vegetation, and surface materials, and their regional interrelationships. People as evaluators and agents of change. Prereq: 131-132 or consent of instructor.

434 Climatology (3) General circulation system leading to world pattern of climates. Climatic change and modification, and interrelationships of climate and human activity. Prereq: 131 or consent of instructor.

435 Biogeography (3) Changing distribution patterns of plants and animals on variety of spatial and temporal scales. Effects of continental drift, Pleistocene climatic change, and human activity on world biota. Prereq: 131-132 or consent of instructor.

436 Water Resources (3) Global water resources and hydrologic processes: water availability, flooding, and water quality issues from physical and economic perspectives. Prereq: 131-132 or consent of instructor.

439 Plant Geography of North America (3) Characteristics and distribution of major plant communities of Canada, the U.S., Mexico, and Central America. Relationships to climate, soil, fire, and human disturbance. Long-term history and future prospects. Prereq: 131 or 132 or coursework in botany or consent of instructor.

441 Urban Geography of the United States (3) Concepts and theories concerning development and significance of systems of cities and internal morphology of cities in the United States. Writing emphasis course. (Same as Urban Studies 441.)

443 Rural Geography of the United States (3) Geographical appraisal of rural areas of the United States, including small towns and urban fringes. Problems and potentials of rural America. Writing-emphasis course.

449 Geography of Transportation (3) Examination of transportation systems, their effects on trade patterns, land use, location problems, and development.

450 Process Geomorphology (3) (Same as Geology 450.)

466 Teaching and Learning Geography (3) Preparation of prospective teachers in content, skills, and understandings needed for effective teaching and assessment of geography in K-12 schools. Course organization and content based largely on that of National Geography Standards.

495 Special Topics in Geography (1-4) Topics vary. Prereq: consent of instructor. May be repeated with consent of instructor. Satisfactory/No Credit or letter grade. Maximum 8 hours.

500 Thesis (1-15) P/NP only.

501 Colloquium in Geography (1) Discussion of departmental research, current research literature, and general topics. Registration required of resident graduate students whenever offered. May be applied toward graduate degree. May be repeated. Maximum 4 hours. Satisfactory/No Credit grading only.
502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

504 Introduction to Geographical Research (1) Research interests and methods of departmental faculty. Research frontiers in geography. Required of new graduate students. Satisfactory/No Credit grading only.

505 Directed Research (2-6) Research on problems as defined by individual students. Prereq: Written consent of instructor and department prior to registration. May be repeated with consent of instructor. Maximum 9 hours. Satisfactory/No Credit or letter grade.

506 Directed Readings (2-6) Readings on topics of interest as defined by individual students. Prereq: Written consent of instructor and department prior to registration. May be repeated with consent of instructor. Maximum 9 hours. Satisfactory/No Credit or letter grade.

509 Topics in Geography (2-3) Topics vary. Prereq: Consent of instructor. May be repeated with consent of instructor. Maximum 6 hours. Satisfactory/No Credit or letter grade.

510 Geographic Software Design (3) Algorithms for spatial analysis, software design, and program implementation in stand alone and distributed computing environments. Prereq: Consent of instructor.

513 Topics in Remote Sensing (3) Applied research using imagery for interpretation and mapping of geographic data. Prereq: 413 or consent of instructor. May be repeated with consent of instructor. Maximum 6 hours.

515 Topics in Quantitative Geography (3) Multivariate analysis applied to problems in geography; research problems utilizing appropriate computer programs; usefulness to geographic research of techniques developed by other disciplines. Prereq: 415 or consent of instructor. May be repeated with consent of instructor. Maximum 6 hours.

517 Geographic Information Management and Processing (3) Concepts and methods in management of geographic information. Database design, manipulation, sampling and analysis. Prereq: Consent of instructor. 

518 GIS Project Management (3) Interactions between management, technical, and application aspects of Geographic Information Systems project through simulated environment of real-world GIS sites. Prereq: 411 or consent of instructor.

519 Graduate Practicum in Cartography/Remote Sensing/GIS (2-6) Prereq: Written consent of department before registration. May be repeated with consent of instructor. Maximum 6 hours.

521 Topics in Cultural Geography (3) Examination of trends, problems, and methods in cultural geography. Prereq: 421 or consent of instructor. May be repeated with consent of instructor. Maximum 6 hours.

532 Topics in Global Change (3) Emerging trends, anticipated problems and methods in global change research and response. Prereq: 434 or consent of instructor. May be repeated with consent of instructor. Maximum 6 hours.

533 Topics in Physical Geography (3) Trends, problems, and methods in geomorphology or other areas of physical geography. Prereq: Consent of instructor. May be repeated with consent of instructor. Maximum 6 hours.

534 Topics in Climatology (3) Trends, problems and methods in area of climatology. Prereq: 434 or consent of instructor. May be repeated with consent of instructor. Maximum 6 hours.

535 Topics in Biogeography (3) Examination of trends, problems, and methods in biogeography. Prereq: 435 or consent of instructor. May be repeated with consent of instructor. Maximum 6 hours.

536 Topics in Watershed Dynamics (3) Trends, problems and methods in study of watershed processes. Prereq: Consent of instructor. May be repeated with consent of instructor. Maximum 6 hours.

541 Topics in Urban Geography (3) Analysis of research on urban systems, internal morphology, urban problems and urban spatial behavior. Prereq: 441 or consent of instructor. May be repeated with consent of instructor. Maximum 6 hours.

549 Topics in the Geography of Transportation (3) Examination of trends, problems, and methods in transportation geography and transportation networks. Prereq: 449 or consent of instructor. May be repeated with consent of instructor. Maximum 6 hours.

591 Foreign Study (1-15) See College of Arts and Sciences. Prereq: Written consent of department prior to registration. Satisfactory/No Credit or letter grade.

592 Off-Campus Study (1-15) See College of Arts and Sciences. Prereq: Written consent of department prior to registration. Satisfactory/No Credit or letter grade.

593 Independent Study (1-15) See College of Arts and Sciences. Prereq: Written consent of department prior to registration. Satisfactory/No Credit or letter grade.

599 Geographic Concept and Method (3) Traditional and modern geographic thought: readings on nature, scope, problems, and methods of geography. Prereq: Consent of instructor.

600 Doctoral Research and Dissertation (3-15) P/NP only.

609 Seminar in Geography (2-3) Topics vary. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

631 Seminar in Natural Hazards (3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

632 Seminar in Dendrochronology (3) Prereq: 432 or consent of instructor. May be repeated. Maximum 6 hours.

633 Seminar in Physical Geography (3) Prereq: 533 or consent of instructor. May be repeated. Maximum 6 hours.

634 Seminar in Climatology (3) Prereq: 534, 532 or consent of instructor. May be repeated. Maximum 6 hours.

641 Seminar in Urban Geography (3) Prereq: 541 or consent of instructor. May be repeated. Maximum 6 hours.

643 Seminar in Rural Geography (3) Prereq: 443 or consent of instructor. May be repeated. Maximum 6 hours.

649 Seminar in Geography of Transportation (3) Prereq: 549 or consent of instructor. May be repeated. Maximum 6 hours.

663 Seminar in Geography of the American South (3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

Department of HISTORY

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

Todd A. Diacon, Head
Thomas E. Burnman, Graduate Liaison

Professors
Ash, S.V., PhD .......................................................... Tennessee
Bosheded, J., PhD ............................................... Harvard
Brummett, P., PhD .............................................. Chicago
Crabtree, L. (Chancellor), PhD ............................. Minnesota
Cutler, W., PhD .................................................. Texas
Diacon, T.A., PhD ........................................... Wisconsin
Farris, W.W., PhD ............................................. Harvard
Feller, D., PhD ..................................................... Wisconsin
Mayhew, A. (Vice Chancellor), PhD ...................... Texas
Norril, R.J. (Bernadotte Schmitt Professor), PhD ...... Virginia
Wheeler, W.B., PhD ........................................ Virginia

Associate Professors
Appier, J., PhD ................................................... California (Riverside)
Bast, R.J., PhD .................................................. Arizona
Bradley, O., PhD .............................................. Cornell
Burman, T.E., PhD ............................................ Toronto
Diacon, T.A. (Head), PhD ................................. Wisconsin
Fleming, C.G., PhD .......................................... Duke
Freeberg, E., PhD ............................................... Emory
Glover, L., PhD ................................................. Kentucky
Higgs, C.A., PhD ............................................... Yale
Luilevicius, V.G., PhD ................................. Pennsylvania
Piehler, G.K., PhD .......................................... Rutgers
Pinckney, P.J., PhD .......................................... Vanderbilt

Assistant Professors
Dessel, J.P., PhD ................................................ Arizona
DeWeerd, H., PhD .......................................... Harvard
Kulikowski, M., PhD ........................................ Toronto
Liu, L., PhD ....................................................... California (San Diego)
Phillips, D., MA ............................................... Harvard
Sacco, L., PhD ................................................ Southern California
White, G., PhD ................................................ Temple
MAJOR DEGREES
History ............................................................................................... MA, PhD

The Department of History offers graduate study leading to the Master of Arts and Doctor of Philosophy degrees. The MA program includes a thesis and non-thesis option. The doctoral program has concentrations in American and European history with special focuses in the areas identified under group II doctoral fields and group III teaching fields.

Detailed information may be obtained from the Director of Graduate Studies in History who also advise all incoming students.

MASTER OF ARTS
History Major

ADMISSION

- Successful completion of a baccalaureate degree from an accredited institution, preferably with a major in history.
- Acceptable scores on the Graduate Record Examination (general).

REQUIREMENTS

Complete 510 and a 600-level research seminar normally during the fall and spring semesters of the first year in the graduate program. Complete 521 in preparation for the MA examination. As many as nine related hours may be taken outside the department. As many as nine graduate credits taken elsewhere may be applied toward the MA degree. Except by prior approval of the Director of Graduate Studies, a student’s coursework must be at the 500 level or above.

Thesis Option

Twenty-four hours of coursework and 6 hours of Thesis 500 for a total of 30 hours are required. Thesis students are required to select one MA field and write a thesis. At the end of the program the thesis student will take a two-hour oral examination on both the thesis and the field.

Non-Thesis Option

A total of 30 hours of coursework is required. At least 6 hours must be completed in each of two MA fields. The primary field is examined by a two-hour written followed within one week by a one-hour oral examination with the single grade of pass/fail given at the conclusion of the oral examination. No examination is given on the secondary field.

MA Fields

- United States (colonial to present)
- Premodern Europe
- Modern Europe
- Asia
- Retention and Termination

A 3.0 overall grade point average is required to remain in good standing. MA students must take the MA examination no later than the semester following the completion of 30 hours. A student who fails the MA examination must repeat the examination no later than the following semester. A student who fails the examination a second time or does not take the examination when required will be dropped from the graduate program.

DOCTOR OF PHILOSOPHY
History Major

ADMISSION

- Successful completion of the MA degree from an accredited institution.
- Acceptable scores on the Graduate Record Examination (general).

REQUIREMENTS

Before being admitted to doctoral candidacy, a student must:

- Complete History 510 at the University of Tennessee, Knoxville (may be waived for comparable experience elsewhere).
- Spend two consecutive semesters in residence.
- Complete 9 hours in one group I doctoral field. There is no minimum hours requirement for a group II field. Complete 9 hours in one group III field, including the appropriate 511, 512, or 513 course and two additional courses at the 500 level. The group III field must be in a different geographic area from the group II field. Courses taken to fulfill MA degrees may be counted toward all field requirements.
- Fulfill the foreign language requirement.
- Complete two 600-level research seminars. (One must be completed at the University of Tennessee, Knoxville.) Students who have completed a master’s thesis must complete only one research seminar (must be taken at the University of Tennessee, Knoxville), and History 621.
- Maintain a 3.0 overall grade-point average in graduate work attempted.
- Complete 24 hours of graduate coursework (21 hours graded A-F) at the University of Tennessee, Knoxville, beyond that required for the MA. Up to 6 hours may be taken outside of the department.
- Except by prior approval of the Director of Graduate Studies, a student’s coursework must be at the 500 level or above.

Language Requirements

Students must demonstrate competence in one foreign language through coursework or examination. The student’s doctoral committee may specify any other languages or research tools, such as statistics, essential for the student’s preparation. The foreign language requirement must be fulfilled before taking the comprehensive examination.

Group III (Teaching Field) Examination

This is a one-hour oral exam which must be completed at any time before the comprehensive examination is taken. If a student fails this, he or she may retake the exam one time only and must do so the following semester.

Comprehensive Examination

The comprehensive examination consists of a written exam (group I) and an oral exam (group II) and must be taken no later than the semester following the semester in which the student
completes the residence, course work, and language requirements (summer excluded). Failure to take the comprehensive examination within the required time will be counted as a failure on the examination. No student will be permitted to take the comprehensive examination unless he or she has passed the group III examination (see above) and has an overall grade-point average of at least 3.0. Qualified students will be examined in one field selected from the group I list below and one field selected from the group II list below. The two exams are taken in the same semester. The group I is an 8-hour written exam. It must be passed before the group II can be taken. The group II is a 2-hour oral exam. A student who fails either exam must repeat it the following semester (summer excluded). A second failure on either exam will cause the student to be dropped from the History graduate program. A student who does not repeat a failed exam within the required time will likewise be dropped from the program.

Admission to Candidacy

Upon successful completion of the above requirements, a doctoral student may be admitted to candidacy.

Doctoral Fields

Group I: Premodern Europe; Modern Europe; United States (colonial to present).

Group II: To be defined by the student’s doctoral committee from within one of the following fields:

- United States - Colonial and Early Republic; 19th century; 20th century; Regional; Military and Foreign Relations; Social and Cultural; American Political
- European – Medieval; Early Modern; Modern; Political and Diplomatic; Intellectual and Cultural; Social and Economic National Fields

Group III (Examined Teaching Field): World History; Western Civilization; U.S. Civilization

Dissertation and Defense

Original research forms the basis for the dissertation. Doctoral candidates must register for a minimum of 3 hours of 600 Dissertation Research each semester and must complete 24 hours of dissertation credit. A final oral defense is given on the dissertation in its historical context. The program must be completed within eight years from admission as a potential candidate.

GRADUATE COURSES

History (462)

500 Thesis (1-15) P/NP only.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

510 Foundations of Graduate Study in History (3) Assumptions and methods of historians. Required of all candidates for advanced degrees.

511 Teaching World History (3) Methodology, conceptualization, historiography, text-book selection and syllabus construction to prepare students to teach courses in world history.

512 Teaching Western Civilization (3) Methodology, conceptualization, historiography, text-book selection and syllabus construction to prepare students to teach courses in western civilization.

513 Teaching United States History (3) Methodology, conceptualization, historiography, text-book selection and syllabus construction to prepare students to teach courses in U.S. history.

515 Introduction to American History to 1840s (3) Survey of major themes, methodologies, and interpretations in early American historiography.

516 Introduction to American History, 1840s –present (3) Survey of major themes, methodologies, and interpretations in modern American historiography.

521 MA Readings (3) Directed readings in preparation for MA examinations. Open only to master’s candidates in history. May be repeated. Maximum 6 hours. Satisfactory/No Credit grading only.

531 Topics in Premodern Europe (3) Reading seminar: secondary sources on premodern European movements and trends. Focus varies. May be repeated. Maximum 15 hours.

532 Topics in Modern Europe (3) Reading seminar: secondary sources on movements and trends that are multinational in focus. Focus varies. May be repeated. Maximum 15 hours.

533 Topics in European National History (3) Reading seminar: secondary sources on intra-national topics, usually British, Russian, German or French. Focus varies. May be repeated. Maximum 15 hours.

541 Topics in Early American History (3) Reading seminar: secondary sources on early North American history. Focus varies. May be repeated. Maximum 15 hours.

542 Topics in 19th-Century United States (3) Reading seminar: secondary sources on 19th-century United States. Focus varies. May be repeated. Maximum 15 hours.

543 Topics in 20th-Century United States (3) Reading seminar: secondary sources on 20th-century U.S. Focus varies. May be repeated. Maximum 15 hours.

544 Topics in U.S. Environmental History (3) Reading seminar: secondary sources on U.S. environmental history. Focus varies. May be repeated. Maximum 15 hours.

551 Topics in the History of Foreign Relations (3) Reading seminar: secondary sources on foreign relations. Focus varies. May be repeated. Maximum 15 hours.

552 Topics in Military History (3) Reading seminar: secondary sources on military history; military operations, social impact of war and naval strategy in foreign policy. May be repeated. Maximum 15 hours.

555 Topics in United States Social and Economic History (3) Reading seminar: secondary sources on U.S. social and economic history. Focus varies. May be repeated. Maximum 15 hours.

556 Topics in European Social and Economic History (3) Reading seminar: secondary sources on social or economic history of European nations. Focus varies. May be repeated. Maximum 15 hours.

557 Topics in Cultural and Intellectual History (3) Reading seminar: secondary sources on cultural and intellectual history. Focus varies. May be repeated. Maximum 15 hours.

558 Topics in United States Regional and Local History (3) Reading seminar: secondary sources on regions, states and cities of the South. Focus varies. May be repeated. Maximum 15 hours.

559 Topics in Jewish History (3) Reading seminar: secondary sources on Jewish history. Focus varies. May be repeated. Maximum 15 hours.

561 Topics in Latin American History (3) Reading seminar: secondary sources on Latin America. Focus varies. May be repeated. Maximum 15 hours.

562 Topics in Asian History (3) Reading seminar: secondary sources on Asian history, East Asia and Middle East. Focus varies. May be repeated. Maximum 15 hours.

580 Topics in History (3) Reading seminar: secondary sources for new topics. Focus varies. May be repeated. Maximum 15 hours.

585 Topics in World History (3) Reading seminar in transnational themes involving analysis of two or more world cultures. Focus varies. May be repeated. Maximum 9 hours.

591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences.

600 Doctoral Research and Dissertation (3-15) P/NP only.

621 Directed Readings (3) Directed readings to prepare candidate for doctoral comprehensive examination. May be repeated. Maximum 1 per doctoral field. Satisfactory/No Credit grading only.
631 Seminar in Pre-Modern European History (3)  Research seminar in primary sources. Focus varies. May be repeated. Maximum 15 hours.
632 Seminar in Modern European History (3)  Research seminar in primary sources culminating in scholarly paper in modern European history. Focus varies. May be repeated. Maximum 15 hours.
641 Seminar in 17th and 18th-Century America (3)  Research seminar in primary sources. Focus varies. May be repeated. Maximum 15 hours.
651 Seminar in Military and Foreign Relations History (3)  Research seminar in primary sources culminating in scholarly paper in military or foreign relations history. Focus varies. Not restricted by national grouping. May be repeated. Maximum 15 hours.
658 Seminar in United States Regional and Local History (3)  Research seminar in primary sources culminating in scholarly paper in regional and local history. Focus varies. May be repeated. Maximum 15 hours.

INTERDISCIPLINARY PROGRAMS
Don Richard Cox, Associate Dean, College of Arts and Sciences, Director

The College of Arts and Sciences offers a series of interdisciplinary undergraduate majors and minors through its interdisciplinary programs. These programs include African and African-American studies, American studies, Asian studies, cinema studies, comparative literature, environmental studies, global studies, Latin American studies, legal studies, Judaic studies, linguistics, medieval studies, urban studies and women’s studies.

Certain courses within these programs are available for graduate credit as listed below. See the Undergraduate Catalog for program descriptions and directors.

African and African-American Studies (022)
421 Comparative Studies in Africa and African-American Societies (3)  Education, religion, and social stratification. Views African-Americans and Africans have of each other and concept of Pan-Africanism.
443 Topics in Black Literature (3)  (Same as English 443.)
450 Issues and Topics in African-American Studies(3)  Topics vary but include a variety of problems, issues, and individuals from the field of African-American studies. May be repeated. Maximum 6 hours.
452 Black African Politics (3)  (Same as Political Science 452.)
461 Art of Southern and Eastern Africa (3)  (Same as Art History 461.)
462 Art and Archaeology of Ancient Africa (3)  (Same as Art History 462.)
463 Arts of the African Diaspora (3)  (Same as Art History 463.)
483 African-American Women in American Society (3)  Historical and contemporary socio-eco-political factors in American society as related to black women. (Same as Women's Studies 483.)
510 Special Topics (3)  May be repeated. Maximum 6 hours.

American Studies (099)
423 Geography of American Popular Culture (3)  (Same as Geography 423.)
510 Special Topics (3)  May be repeated. Maximum 6 hours.

Asian Studies (145)
471 Selected Topics in Asian Studies (3)  Content varies. May be repeated. Maximum 9 hours.
510 Special Topics (3)  May be repeated. Maximum 6 hours.

Cinema Studies (251)
400 Special Topics (3)  May be repeated. Maximum 6 hours.
420 French Cinema (3)  (Same as French 420.)
421 Topics in Italian Literature and Cinema (3)  (Same as Italian 421.)
433 History of Film and Modern Art (3)  (Same as Art Media Arts 433.)
434 Hispanic Culture Through Film (3)  (Same as Spanish 434.)
465 Latin American Film and Culture (3)  (Same as Latin American Studies 465; Spanish 465.)
469 Sexuality and Cinema (4)  (Same as Women's Studies 469.)
489 Special Topics in Film (3)  (Same as English 489.)
510 Special Topics (3)  May be repeated. Maximum 6 hours.

Comparative Literature (260)
401-402 Special Topics in Comparative Literature (3,3)  Content varies. May be repeated. Maximum 9 hours.
452 Modern Drama, 1880-1945 (3)  (Same as English 452.)
454 Twentieth-Century International Novel (3)  (Same as English 454.)
510 Special Topics (3)  May be repeated. Maximum 6 hours.

Judaic Studies (595)
405 Modern Jewish Thought (3)  (Same as Religious Studies 405.)
425 Early Christian and Byzantine Art, to 1350 (3)  (Same as Art History 425.)
431 Medieval Art of the West, 800-1400 (3)  (Same as Art History 431.)

Latin American Studies (600)
456 Latin American Government and Politics (3)  (Same as Political Science 456.)
465 Latin American Film and Culture (3)  (Same as Cinema Studies 465; Spanish 465.)
479 Disenchanted Texts in Hispanic Literature (3)  (Same as Spanish 479.)
510 Special Topics (3)  May be repeated. Maximum 6 hours.

Legal Studies (617)
400 Mass Communications Law and Ethics (3)  (Same as Journalism and Electronic Media 400.)
430 United States Constitutional Law: Sources of Power and Restraint (3)  (Same as Political Science 430.)
431 United States Constitutional Law: Civil Rights and Liberties (3)  (Same as Political Science 431.)
435 Criminal Law and Procedure (3)  (Same as Political Science 435.)
442 Administrative Law (3)  (Same as Political Science 442.)
445 Administration of Justice (3)  (Same as Political Science 445.)
451 Criminal Justice (3)  (Same as Sociology 451.)
455 Society and Law (3)  (Same as Sociology 455.)
470 International Law (3)  (Same as Political Science 470.)
490 Language and Law (3)  (Same as English 490; Linguistics 490.)
496 The Rhetoric of Legal Discourse (3)  (Same as English 496.)
Linguistics
Chair
Ilona Leki, English

Graduate Certificate in Linguistics

The linguistics program offers a graduate certificate designed to meet the needs of individuals wishing to apply linguistics in various professional fields. It draws upon the strengths of faculty members in applied linguistics, sociolinguistics, and theoretical linguistics. The requirements focus upon the central aspects of the discipline of linguistics and aim to develop students’ basic knowledge and skills in the central aspects of the discipline.

Upon successful completion of this program, students should have an understanding of the basic theoretical concepts and approaches of the discipline and have gained experience in the use of analytic and research techniques. It is also designed to meet the specific needs of those students who are preparing to teach foreign language at the high school/junior college level and/or to obtain advanced level proficiency in linguistics and cultural knowledge.

Prospective candidates for the certificate may take up to six hours of certificate classes before making application for admission to the certificate program. Once admitted to the program they must maintain a GPA of at least 3.0. Application to the certificate program must be made to the Chair of the Interdisciplinary Linguistics Program by submitting a letter of application and copies of undergraduate transcripts (and graduate transcripts, if applicable). A minimum of fifteen credit hours is required; all courses must be selected in consultation with a program advisor, who must approve all courses for individual students prior to their being taken, except that, as noted above, up to six credit hours may be accepted from candidates upon admission. Students will satisfy the requirements of the certificate program by selecting fifteen hours from the following lists, provided that those courses are selected in consultation with a program advisor, who approves their selection. A certificate cannot be earned without program approval by the advisor.

REQUIREMENTS

- At least one of the following courses: French 512, German 512, Spanish 512, Linguistics 423, 425.
- Additional courses from the following list for a total of fifteen credit hours: Audiology and Speech Pathology 506, 579, 601, 652, English 508, 509, 680, French 421, 422, 510, German 510, 541, 631, 632, Linguistics 400, 411, 426, 429, 435, 471, 472, 474, 475, 476, 477, 485, 490, Spanish 531, Psychology 400, 543, 617, Statistics 531. Other courses may, where appropriate, be substituted for the courses listed above with the permission of the Chair of the Linguistics Program.
- A non-credit capstone project, normally the preparation of a paper for presentation at a professional conference or for publication in a journal, planned and completed in consultation with a program advisor.

Linguistics (623)

400 Topics in Linguistics (3) Content varies. May be repeated. Maximum 6 hours.

411 Linguistic Anthropology (3) (Same as Anthropology 411.)

423 The Development of Diachronic and Synchronic Linguistics (3) Development of Western linguistic thought from Hebrews and Greeks through modern times. Readings from Boas, Sapir, Bloomfield, and others. Prereq: 9 hours of courses required for Linguistics major (300-level or above) or consent of instructor.

425 Introduction to Descriptive Linguistics (3) (Same as French 425; German 425; Russian 425; Spanish 425.)

426 Methods of Historical Linguistics (3) (Same as French 426; German 426; Russian 426; Spanish 426.)

429 Romance Linguistics (3) (Same as French 429; Spanish 429.)

431 Topics in Hispanic Linguistics (3) (Same as Spanish 430.)

435 Structure of the German Language (3) (Same as German 435.)

436 History of the German Language (3) (Same as German 436.)

471 Sociolinguistics (3) (Same as English 471; Sociology 471.)

472 American English (3) (Same as English 472.)

474 Teaching English as a Second or Foreign Language I (3) (Same as English 474.)

475 Teaching English as a Second or Foreign Language II (3) (Same as English 475.)

476 Second Language Acquisition (3) (Same as English 476.)

477 Pedagogical Grammar for ESL Teachers (3) (Same as English 477.)

485 Special Topics in Language (3) (Same as English 485.)

490 Language and Law (3) (Same as English 490; Legal Studies 490.)

510 Special Topics (3) May be repeated. Maximum 6 hours.

Medieval Studies
Chair
Laura L. Howes, English

Graduate Certificate in Medieval Studies

The medieval studies program offers a graduate certificate enabling students with an interest in medieval topics to acquire a broad foundation in the interdisciplinary approaches to medieval research and to begin putting these approaches into practice. For students earning MA's or PhD's in traditional disciplines, the program will augment their training and may make them more attractive candidates for academic positions.

Prospective candidates for the certificate may take up to six hours of certificate classes before making application for admission to the certificate program. Once admitted to the program they must maintain a GPA of at least 3.0. Application to the certificate program must be made to the Chair of the Medieval Studies Program by submitting a letter of application and copies of undergraduate transcripts (and graduate transcripts, if applicable). A minimum of fifteen credit hours is required; all courses must be selected in consultation with a program advisor, who must approve all courses for individual students prior to their being taken, except that, as noted above, up to six credit hours may be accepted from candidates upon admission. Students will satisfy the requirements of the certificate program by selecting fifteen hours from the following lists, provided that those courses are selected in consultation with a program advisor, who approves their selection. A certificate cannot be earned without program approval by the advisor.

REQUIREMENTS

- Medieval Studies 510.
- Twelve additional hours chosen from at least two disciplines. A minimum of six hours must be taken in one discipline. Students may choose from the following courses: Art History 425, 431, 441, 451, 571, English 401, 402, 508, 513, 514, 610, 611, 620, 621, French 410, 429, 540, German 541, History 531, Italian 401, 402, Spanish 531, 532, Philosophy 520, 620, Political Science 475. Topics and special topics courses, where appropriate,
may be substituted for any of the above courses with the permission of the Chair of the Medieval Studies Program.

- Demonstration of competency in reading medieval Latin, either by earning an A or B in Classics 435, or by passing the University of Toronto’s MA Medieval Latin exam, given on campus in fall and spring semesters. Where appropriate, students may substitute competency in reading medieval Greek, Hebrew, or Arabic. The chair of Medieval Studies, in conjunction with the Medieval Studies committee, will establish standards for determining competency in these languages as need arises.

- A non-credit capstone project, usually a paper. The paper should be interdisciplinary in its approach to its topic and may be an outgrowth of a seminar paper in another course. This capstone paper must be presented to an audience of Medieval Studies committee members and other interested faculty and graduate students before the certificate is granted.

Medieval Studies (674)
510 Special Topics (3) May be repeated. Maximum 6 hours.

Urban Studies (985)
401 The City in the U.S. (3) (Same as Planning 401.)
441 Urban Geography of the United States (3) (Same as Geography 441.)
464 Urban Ecology (3) (Same as Sociology 464.)

Women’s Studies
Chair
Cheryl Brown Travis, Psychology

Graduate Certificate in Women’s Studies

The women’s studies program offers a graduate certificate, enabling students to develop critical thinking about the economic, social, and legal factors influencing women’s roles in contemporary and historical societies, and to evaluate those roles in the widest possible perspectives. Students may examine representations of women in the arts and the media, evaluate how science and medicine view women as objects of study, and study how women work as practitioners and researchers in these fields.

The program is designed to provide a supplementary perspective for students already enrolled in graduate programs, to provide an entry into graduate study for those who are exploring a number of disciplinary approaches, to provide enrichment for members of the community who have a bachelor’s or an advanced degree, and to develop skills for professionals in various fields.

Prospective candidates for the certificate may take up to 6 hours of certificate classes before making application for admission to the certificate program. Once admitted to the program they must maintain a GPA of at least 3.0. Application to the certificate program must be made to the Chair of the Women’s Studies Program by submitting a letter of application and copies of undergraduate transcripts (and graduate transcripts, if applicable). A minimum of fifteen credit hours is required; all courses must be selected in consultation with a program advisor, who must approve all courses for individual students prior to their being taken, except that, as noted above, up to six credit hours may be accepted from candidates upon admission. Students will satisfy the requirements of the certificate program by selecting fifteen hours from the following lists, provided that those courses are selected in consultation with a program advisor, who approves their selection. A certificate cannot be earned without program approval by the advisor.

REQUIREMENTS

- Women’s Studies 510.

- Twelve additional hours, drawn from at least two different disciplines. For students enrolled in an MA program, no more than two of the certificate courses may be drawn from that program or the department in which the MA program is housed. Students are encouraged to select from courses at the 500 level and above. Students may choose from the following list: Anthropology 517, English 584, Health 420, 520, Public Health 585, Law 849, 862, 958, Women’s Studies 400, 410, 422, 425, 434, 466, 469, 476, 483, 510, 593.

- A capstone experience such as presenting research results to a professional group, submitting a work for publication, arranging an exhibit, or presenting a performance to a group approved by the individual advisor and the chair of Women’s Studies.

Women’s Studies (994)
400 Topics in Women’s Studies (3) Content varies. May be repeated.
410 Sex Role Development: Implications for Education and Counseling (3) (Same as Counselor Education 410.)
422 Women Writers in Britain (3) (Same as English 422.)
425 Women’s Health (3) (Same as Health 425.)
434 Psychology of Gender (3) (Same as Psychology 434.)
469 Sexuality and Cinema (4) Exploration of issues surrounding sexuality, gender and cinema from points of view of feminist film criticism. (Same as Cinema Studies 469.)
483 African-American Women in American Society (3) (Same as African and African-American Studies 483.)
510 Special Topics (3) May be repeated. Maximum 6 hours.
593 Independent Study (1-6) Prereq: Consent of Chair of Women’s Studies.

LIFE SCIENCES
(Interdepartmental)

Otto J. Schwarz, Chair

MAJOR DEGREES
Life Sciences.............................................................................. MS, PhD

The program leading to the MS and PhD with a major in life sciences are interdepartmental and interdisciplinary and are designed to augment offerings of individual departments in two concentrations: genome science and technology, and plant physiology and genetics. Students interested in these areas should contact either the Life Sciences chairperson or the director of the area of interest. Each concentration is administered separately and has unique admission requirements.
Genome Science and Technology Concentration
Jeffrey Becker, Director

The University of Tennessee-Oak Ridge National Laboratory Graduate School of Genome Science and Technology (GST) is a unique and multidisciplinary program for full-time graduate study leading to the MS or PhD degree. The program focuses on developments in the biological and computational sciences relating to genome sequences, and the program is designed to take advantage of collaboration of the University of Tennessee, Knoxville, and the Oak Ridge National Laboratory. Students are trained in emerging areas of genome science, with emphasis on mammalian genomics, structural biology, proteomics, computational biology and bioinformatics, and bioanalytical technologies. Scientists from both campuses participate in teaching. Research projects pursued for either the MS or PhD degrees are mentored jointly by a faculty member from each campus. A year-long introductory course in Genome Science and Technology focuses on inquiry conducted on a genome-wide scale. Laboratory rotations during the first year offer students hands-on experience in a variety of focus areas.

Applicants are expected to have a background in the biological, physical, or computational sciences. Requirements for admission are one year of general biology or the equivalent; two years of chemistry, including one year of general chemistry and one year of introductory organic chemistry with laboratory; one year of calculus; one year of physics; at least eight semester hours in cognate sciences related to the program; a combined GRE score of 1800 for the verbal, quantitative, and analytical sections is highly desirable; three letters of recommendation; and a minimum grade point average of 3.0 out of 4.0. Coursework in genetics, cell biology and computer sciences is advantageous. Superior students, deficient in one or more of the above requirements, may be admitted at the discretion of the program admissions committee. Deficiencies will be made up as a part of the courses taken by the individual student.

Requirements for the PhD degree are satisfactory completion of the genome science and technology core courses, (Life Sciences 505, 515-516, 520-21, 540-541; Biochemistry and Cellular and Molecular Biology 511 and 512); three semesters of GST laboratory, satisfactory completion of formal advanced courses in the areas of the student’s interest, passing both written and oral comprehensive examinations, a dissertation reporting the results of original and significant scientific research (a minimum of 24 semester hours of course 600 is required), a final oral/written examination on the dissertation, and a formal seminar presentation of the dissertation research. Participation in at least one seminar during each semester of residence after the first year is strongly recommended. The master's degree requires a minimum of 30 semester hours of study approved by the student’s committee, a thesis, and an oral examination.

Plant Physiology and Genetics Concentration
Otto J. Schwarz, Director

This program provides the opportunity for intensive training and research experience in areas transcending the usual boundaries of botany, biochemistry, and agricultural plant sciences. Solutions of problems concerning the interactions of physiology and genetics in applied and fundamental aspects of plant science are the focus.

Admission requirements are a bachelor’s degree with a major in a biological, behavioral, or physical science; GRE (general) score; three letters of recommendation; and coursework including a year of calculus (differential and integral), one year of chemistry and a year of physics. Specific course deficiencies may be corrected during the first year.

Required courses are Life Sciences 510; Botany 521, 522; Biochemistry and Cellular and Molecular Biology 511, 512; Plant Sciences 471 or Ecology and Evolutionary Biology 560; Microbiology 410. The master’s degree requires a minimum of 30 semester hours of study approved by the student’s committee, a thesis, and an oral examination. The minimum requirements for the doctoral degree include at least 6 hours above the 600 level, 24 semester hours of course 600, courses approved by the student’s committee, a comprehensive examination, a doctoral dissertation, and a defense of dissertation.

GRADUATE COURSES

Life Sciences (621)

500 Thesis (1-15) P/NP only.
502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and /or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.
503 Graduate Research Participation (3-12) Special advanced research project not related to dissertation research. Topics chosen with consent of instructor. May be repeated. Maximum 12 hours.
505 Research Rotation (2) Laboratory rotations with faculty member on clearly defined projects. Written proposal and oral report. May be repeated. Maximum 8 hours.
507 Bioinformatics and Computational Biology (1-3) Topics to be covered include the application of computing, modeling, data analysis, and information technology to fundamental problems in the life sciences. May be repeated. Maximum 12 hours.
510 Special Topics in Life Sciences (1-3) Specializations in biotechnology; cellular, molecular, and developmental biology; environmental toxicology; ethology; plant, physiology and genetics; and physiology. May be repeated. Maximum 9 hours.
515-516 Introduction to Genome Science and Technology I, II (1,1) 515 — Introduction to research in genome science and technology concentration. 516 — Science and ethics of practice of science. Satisfactory/No Credit grading only.
520-521 Genome Science and Technology I, II (4,4) 520- Overview of genomics, advanced genetics principles. 521- Analytical technologies and special techniques.
540-541 Colloquium (1,1) Invited speakers. Topics announced in advance. May be repeated. Maximum 12 hours. Satisfactory/No Credit grading only.
550 Mammalian Genetics and Genomics (3) Genetic variation, inheritance, phenotypic traits, molecular genetics and genomics, mutagenesis in laboratory rodents and other mammals. Prereq: 520-521.
591 Foreign Study (1-15) See College of Arts and Sciences.
592 Off-Campus Study (1-15) See College of Arts and Sciences.
593 Independent Study (1-15) See College of Arts and Sciences.
595-596 Special Topics in Genome Science and Technology (1-3) Tutorials or lectures in variety of special topics to be chosen by instructor. May be repeated. Maximum 12 hours.
600 Doctoral Research and Dissertation (3-15) P/NP only.
615 Journal Club in Genome Science and Technology (1) Reading and discussion based on current literature. May be repeated. Maximum 12 hours. Satisfactory/No Credit grading only.
695-696 Advanced Topics in Genome Science and Technology (1-3) Tutorials or lectures on variety of advanced topics to be chosen by instructor. May be repeated. Maximum 12 hours.
http://www.math.utk.edu/

Robert J. Daverman, Interim Head
David F. Anderson, Graduate Liaison

Professors
Alexiades, V., PhD ........................................... Delaware
Anderson, D.F., PhD .......................................... Chicago
Conway, J.B., PhD ............................................. Louisiana State
Daverman, R.J., PhD ......................................... Wisconsin
Dobbs, D.E., PhD ............................................... Cornell
Dyak, J., PhD .................................................... Warsaw (Poland)
Guarneresi, S., PhD .......................................... Moscow State
Gross, L., PhD ................................................... Cornell
Hallam, T.G., PhD ............................................ Missouri
Hinton, D.B., PhD ............................................ Tennessee
Jordan, G.S., PhD ............................................. Wisconsin
Karakashian, O., PhD ........................................ Harvard
Lenhart, S., PhD ............................................... Kentucky
Mulya, S., PhD .................................................. Maryland
Pfautz, C.P., PhD .............................................. Maryland
Rajput, B.S., PhD ............................................. Illinois
Richter, S., PhD ................................................. Michigan
Rosinski, J., PhD .............................................. Wroclaw University
Schaefer, P.W., PhD ........................................... Maryland
Simmons, H.J., PhD ......................................... California Institute of Technology
Sonj, R.P., PhD ................................................... Oregon State
Stephenson, K.R., PhD ....................................... Wisconsin
Sundberg, C., PhD ............................................. Wisconsin
Thistlethwaite, M., PhD ...................................... Manchester (UK)
Wade, W.R., PhD ............................................. California (Riverside)
Wagner, G.G., PhD ........................................... Duke

Associate Professors
Collins, C., PhD .............................................. Minnesota
Feng, X., PhD .................................................... Pennsylvania
Freire, A., PhD .................................................. Princeton
Guan, B., PhD ................................................... Massachusetts
Kimble, K.R. (UTSI), PhD ................................. Ohio State
Kuo, Y., PhD ..................................................... Cincinnati
Schulze, T., PhD ................................................. Northwestern
Sonj, B.K. (UTSI), PhD ....................................... Texas
Xiong, J., PhD .................................................. North Carolina (Chapel Hill)

Assistant Professors
Brooksky, N., PhD .......................................... Saskatchewan
Chen, X., PhD .................................................. Case Western Reserve
Conant, J., PhD ................................................. Rutgers
Davis, R., PhD .................................................. Tennessee
Denzler, J., PhD ............................................... ETH (Zurich)
Kachi, Y., PhD .................................................. Tokyo
Todorova, G.H., PhD ......................................... Moscow State
Tzermias, P., PhD ............................................. California (Berkeley)
Wang, C., PhD .................................................. Temple

Lecturers
Bonee, K., MS .................................................. Tennessee
Campbell, T., MM ............................................. Tennessee
Farvin, F., MS .................................................. Tennessee Tech
Fowler, J., MA ................................................... Kentucky
Gilbert, M., MS .................................................. Tennessee
Gleason, J., PhD .............................................. California (Santa Barbara)
Kilislian, H., MS .............................................. Tennessee
Lawkins, W., PhD ............................................. Tennessee
Linwood, D., PhD .......................................... Courant Institute
Long, J., PhD ................................................... Michigan
McCland, M., MA ............................................ Murray State
Peery, M., MM .................................................. Tennessee
Reagan, MM ..................................................... Tennessee
Salinas, T., MS .................................................. Tennessee
Sikkema, D., MS .............................................. Tennessee
Smith, K., MM .................................................. Tennessee
Stein, D., MS ................................................... Tennessee
Szczepanski, A., PhD ........................................ California (San Diego)

MAJOR DEGREES
Mathematics ...................................................... MMath, MS, PhD

The Mathematics Department has three graduate degrees: the Master of Mathematics degree, intended primarily for teachers; the Master of Science degree, designed to prepare students for industrial employment and for teaching; and the Doctor of Philosophy degree, designed to prepare students for industrial employment and for college and university teaching and research. Contact the department office for additional information.

A student offering mathematics as a minor for the master’s degree is required to obtain at least six hours of graduate credit in courses numbered above 400 and approved by both the major department and the Department of Mathematics.

For additional information, please visit the graduate Web site on the Department of Mathematics’ homepage at www.math.utk.edu.

MASTER OF MATHEMATICS
Mathematics Major

Before admission to the Master of Mathematics program, the applicant must have either (a) certification for teaching secondary mathematics in at least one state, or (b) three years of elementary school, secondary school, or community college teaching experience. Applicants must have successfully completed one year of calculus (141-42 or equivalent) and a course in matrix algebra (251 or equivalent).

REQUIREMENTS

The following requirements must be met:

- Complete 30 hours of coursework of which 21 must be at the 500 level. The coursework must include 504, 505, 506, 507, and 6 hours in 509. At most, six hours may be taken outside the Department of Mathematics (selected in consultation with the advisor).
- Pass a final examination upon completion of all coursework.

In exceptional circumstances, part of admission requirement (b) might be satisfied concurrently with coursework. Normally, Master of Mathematics degree students will start the program by taking 504 during the summer.

MASTER OF SCIENCE
Mathematics Major

REQUIREMENTS

The department offers two options for the Master of Science degree. The first option requires a thesis for which 6 hours must be earned along with 24 additional hours of work in acceptable courses numbered above 400. Of the additional hours, 6 may be in an area outside the department and 15 must be in courses in mathematics numbered above 500.

After one semester of graduate study, a student whose advisory committee gives its approval may choose the non-thesis option, for which 30 hours in courses numbered above 400 are required. Of these, 21 hours (at least 15 of which must be in mathematics) must be in courses numbered above 500. Of the 30 hours, 9 in courses approved by the advisory committee may be taken in fields other than mathematics. For this option it is also required that a written final examination be passed and that credit be received for a reading course (598) in which a term paper or project is required.
Applied Mathematics Concentration

REQUIREMENTS
For this concentration, available under the thesis or the non-thesis option, the student must complete the following:

- Prerequisite courses: Numerical Algorithms 371 or Numerical Analysis 471 or Numerical Algebra 472; Methods in Applied Mathematics 512 or both Differential Equations II 431 and Partial Differential Equations 435; Honors Advanced Calculus 447-448 or Advanced Calculus I, II 445-446; Matrix Algebra II 453.
- One hour of Seminar in Applied Mathematics 519 or Seminar in Mathematical Ecology 589.

DOCTOR OF PHILOSOPHY
Mathematics Major

REQUIREMENTS
For the PhD with a major in mathematics, the student must meet the following four requirements in addition to those of the Graduate Council:

- Satisfy either the standard program or the interdisciplinary mathematical ecology concentration. A student intending to work in mathematical ecology may select either but is encouraged to complete the interdisciplinary mathematical ecology concentration. A student may elect to switch from one to the other provided the constraints of the latter option have not been violated. A student’s status after electing such transfer is determined by the complete history of the student’s earlier mathematics examinations from the standard program and the interdisciplinary mathematical ecology concentration. Descriptions of both programs are given below.
- Demonstrate proficiency in one foreign language, normally French, German or Russian. This requirement must be met prior to the examination in the area of specialization. A student’s doctoral committee may require the student to pass a second language examination.
- Pass an examination in the field of specialization. After the requirements in 1. and 2. have been met, this examination will be given by a committee appointed by the department head. A student may take this specialty examination only twice.
- Pass a one-year, 600-level sequence in mathematics outside the student’s area of specialization. The department head and the student’s doctoral committee must approve the sequences selected to fulfill this requirement. (Such approval may occur after completion of the sequence.)

These requirements must be completed no later than the start of a student’s seventh year (as a mathematics graduate student at the University of Tennessee, Knoxville).

Standard Program

Demonstrate knowledge in five subjects selected from the groups listed below by passing written examinations in three subjects and by earning grades of B+ or better each semester in the courses associated with two additional subjects.* The three subjects selected for written examinations must be from Groups I, II, III. At least two groups must be represented in the three written examinations. At least three groups must be represented in the five subjects.

- **Group 1:** Probability 523-524, Real Analysis 541-542, Applied Linear Algebra 547-548.

A student’s five subjects may not include both Real Analysis and Applied Linear Analysis or both Mathematical Principles of Fluid Mechanics and Mathematical Principles of Continuum Mechanics. A student may not count examinations in both Ordinary Differential Equations and Partial Differential Equations, but both may be included in a student’s five subjects. With prior approval of the graduate committee, a student may utilize as a Group IV course a year-long graduate-level sequence from outside the Department of Mathematics. At most one such utilization may be made.

A student may take as many written examinations as desired at any time the examinations are given, subject to the following conditions:

- The examinations to be taken must be approved in advance by the student’s advisory committee.
- At any one time a student may take at most only the number of examinations necessary to complete the requirements.
- A student may take a collection of written examinations a maximum of three times, but no one failing four examinations, counting possible repetitions, will be permitted to take another examination. An exception is that a student who does not have a master’s degree in

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*In lieu of earning a grade of B+ or better each semester in a sequence from Group 1, 2, or 3, a student may demonstrate proficiency in that subject by passing the associated written examination. For this purpose, only one examination is permitted for each of up to two subjects, and this use of a written examination must be declared before the examination is taken so that the sitting for the examination and any failure are not counted toward the limits in condition c.
mathematics and who has been enrolled in a University of Tennessee graduate program in mathematics no longer than one year may take written examinations at one time during that year without having that sitting for the examinations or any incurred failure(s) count toward the limits imposed above.

- At least two examinations must be taken and at least one must be passed before the start of a student’s fourth year. Three examinations must be passed before the start of a student’s fifth year.

**Mathematical Ecology Concentration**

The student must pass written examinations in three subjects:
1. Mathematical Ecology 581-582; 2. A subject from groups 1, 2, and 3 of the standard program; 3. A subject represented by a year-long graduate-level sequence from outside the Department of Mathematics. The sequence must be approved in advance by the mathematical ecology faculty and by the departmental Graduate Committee. At least one member of the mathematical ecology faculty must be involved in the grading of the examination. The examination in this subject may be taken only twice.

The student also must earn grades of B+ or better each semester in the courses associated with two additional subjects from the groups listed in the standard program. This requirement may not be satisfied with courses from outside the department. At least one of the subjects used to meet this requirement or the written examination subject in 2 must be from groups 1 and 2.

Except for the privilege of utilizing as a group 4 course a course from outside the department, this concentration is subject to the constraints and privileges specified in the standard program, including the restrictions on related subjects, the conditions placed on the taking of written examinations, and the option to pass a written examination in lieu of earning a grade of B+ or better each semester in a sequence from group 1, 2 or 3.

**GRADUATE COURSES**

**Mathematics (641)**

400 History of Mathematics (3) Development of major ideas in mathematics from ancient to modern times and influence of ideas in science, technology, philosophy, art, and other areas. Writing emphasis course: at least one in-class essay examination and 3000 words of writing outside classroom. Prereq: 251 (or 257) and 300.

401 Mathematics and Microcomputers (3) Primarily for students seeking certification as mathematics teachers at secondary level. Use of microcomputers to study concepts and problems in mathematics. Does not satisfy the major requirements for a BS or MS in mathematics. Prereq: 141 or 147.

403 Mathematical Methods for Engineers and Scientists (3) Matrix computations, numerical methods, partial differential equations, Sturm-Liouville Theory and special functions used in engineering and science. Does not satisfy major requirements for a BS or MS in mathematics. Prereq: 231, 241, and familiarity with operating system and programming language.

404 Applied Vector Calculus (3) Topics from multivariable and vector calculus; line and surface integrals, divergence theorem and theorems of Gauss and Stokes. Prereq: 241 or 247.

405 Models in Biology (3) Difference and differential equation models of biological systems. May not be counted toward graduate degree. Prereq: 142 or 148 or 152.


421 Combinatorics (3) Introduction to problems of construction and enumeration for discrete structures: sequences, partitions, graphs, finite fields and geometries, or experimental designs. Prereq: 323 or consent of instructor.

423 Probability I (3) Axiomatic probability, multivariate distributions, conditional probability and expectations, methods of moment generating/characteristic functions. Laws of large numbers and central limit theorem. Prereq: 300-level probability or consent of instructor.

424 Probability II (3) Elements of stochastic processes: Random walk, Markov chains and Poisson processes. Other topics as selected by instructor. Prereq: 423.

425 Statistics (3) Derivation of standard statistical distributions: t, F and χ²; independence of sample mean and variance; basic limit theorems; point and interval estimation, Bayesian estimates; statistical hypotheses, Neyman-Pearson theorem; likelihood ratio and other parametric and non-parametric tests; sufficient statistics. Prereq: 423 or consent of instructor.


445-446 Advanced Calculus I, II (3,3) Theory of sequences, series, differentiation, and Riemann integration of functions of one or more variables. Prereq: 241 or 247 and 300, or consent of instructor.

447-448 Honors: Advanced Calculus I, II (3,3) Honors version of 445-446. Prereq: 241 or 247 and 300, or consent of instructor.

453 Matrix Algebra II (3) Matrix theory including Jordan canonical form. Prereq: 251 or 257.

455-456 Abstract Algebra I, II (3,3) Algebraic structures: groups, rings, fields, vector spaces and linear transformations. Prereq: 251 or 257 and 300, or consent of instructor.

457-458 Honors: Abstract Algebra I, II (3,3) Honors version of 455-456. Prereq: 251 or 257 and 300, or consent of instructor.

460 Geometry (3) Axiomatic and historical development of neutral, Euclidean, and hyperbolic geometry stressing proof technique and critical reasoning. Models of non-Euclidean geometries. Prereq: 300 or consent of instructor.

461 Topology (3) Topology of line and plane, separation properties, compactness, connectedness, continuous functions, homeomorphisms, continua and topological invariants. Prereq: 241 or 247 and 300, or consent of instructor.

471 Numerical Analysis (3) Computation, instabilities, and rounding. Interpolation and approximation by polynomials and piecewise polynomials. Quadrature and numerical solution of initial and boundary value problems of ordinary differential equations, stiff systems. Prereq: 371 or consent of instructor. (Same as Computer Science 471.)


475 Industrial Mathematics (3) Modeling, analysis, and computation applied to scientific/technological/industrial problems. Prereq: 231 and familiarity with an operating system and a programming language (e.g. 171, 371, or Computer Science 102.)

490 Readings in Mathematics (1-3) Open to superior students with consent of department head. Independent study with faculty guidance. Prereq: Consent of faculty mentor to supervise independent work. May be repeated. Maximum 9 hours.

499 Seminar in Mathematics (1-3) Topics vary. Requires out-of-class projects and/or class presentations by students. Credit hours announced for each seminar. Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

500 Thesis (1-15) P/NP only.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

504 Discrete Mathematics for Teachers (3) Mathematical logic and methods of argument, sets, functions and relations, combinatorics. Normally first graduate course for students seeking MM degree. For students in Master of Mathematics program and for students in graduate programs in College of Education, Health, and Human Sciences. May not apply toward MS degree in mathematics. Prereq: 1 year calculus or equivalent.
505 Analysis for Teachers (3) Development of differential and integral calculus, proofs of basic theorems. For students in Master of Mathematics program and for students in graduate programs in College of Education, Health, and Human Sciences. May not apply toward MS degree in mathematics. Prereq: 1 year calculus or equivalent.

506 Algebra for Teachers (3) Algebraic structures: integral domains and fields and their applications to algebra of integers and polynomials. For students in Master of Mathematics program and for students in graduate programs in College of Education, Health, and Human Sciences. May not apply toward MS degree in mathematics.


509 Seminar for Teachers (3) For students in Master of Mathematics program and for students in graduate programs in College of Education, Health, and Human Sciences. May not apply toward MS degree in mathematics. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

510 Applied Mathematics Laboratory (1) Computer applications in applied mathematics: software packages for matrix analysis, symbolic algebra, and differential equations. Coreq: 511 or 512. May be repeated.


513-514 Mathematical Principles of Fluid Mechanics (3,3) Equations of motion, incompressible and compressible potential flow, shock waves, viscous flows. Navier-Stokes equations, Prereq: 431, 435, and 445-446 or 404, or consent of instructor.

515-516 Analytical Applied Mathematics (3,3) Analysis of advanced techniques in context for modern applied problems: dimensional analysis and scaling, perturbation theory, variational approaches, transform theory, wave phenomena and conservation laws, stability and bifurcation, distributions, integral equations. Prereq: 446 or 448, 453, and either 511-512 or both 431 and 435.

517-518 Mathematical Methods in Physics (3,3) (Same as Physics 571-572.)

519 Seminar in Applied Mathematics (1-3) May be repeated. Maximum 12 hours.

521-522 Enumerative Combinatorics (3,3) Sieve methods, recursion, generating functions, and permutation groups applied to enumeration of discrete structures. Incidence algebras and combinatorics of partially ordered sets.

523-524 Probability (3,3) Pertinent facts from measure theory, definition of abstract probability spaces; Kolmogorov’s existence theorem; series of independent random variables and laws of large numbers; general theory of distributions of random vectors and their characteristic functions; weak convergence concept, weak compactness and Levy’s continuity theorem in Euclidean spaces; infinitely divisible distributions and central limit problem; general concept and properties of conditional expectation, martingales, Doob’s martingale and optional sampling theorems. Prereq: 445-446. Recommended prereq: 423.

525-526 Statistics (3,3) Pertinent facts from probability theory; formulation of statistical models; sufficiency, Fisher-Neyman factorization theorem, exponential families, Bayesian models; methods of estimation and optimality; uniform minimum variance unbiased estimates, asymptotic efficiency and optimality; the confidence procedures and hypothesis testing; optimal tests and confidence intervals, the Neyman-Pearson lemma, uniformly most powerful tests; general linear models, estimation and tests in linear models; non-parametric models; rank methods for comparison, linear regression and independence, robust tests; topics from decision theory. Prereq: 445-446. Recommended prereq: 425.

527 Stochastic Modeling (3) Models in probability applied to real world situations; queuing theory; branching processes; Monte Carlo simulation. Prereq: 445-446 or consent of instructor.


534 Calculus of Variations (3) Necessary conditions for extrema, Euler’s equation, broken extremals, Weierstrass-Erdmann conditions. Sufficient conditions for extrema-Legendre’s and Jacobi’s conditions, conjugate points. Multiple integrals. Prereq: 431.

535-536 Partial Differential Equations (3,3) First order equations, classification of equations and properties of elliptic, hyperbolic, and parabolic equations in several variables. Prereq: 445-446 and 231 or consent of instructor.

537-538 Mathematical Principles of Continuum Mechanics (3,3) Conservation principles, equations of equilibrium and motion for fluids and elastic solids, constitutive relations and stress, convexity properties, bifurcation phenomena, existence theory. Prereq: 431, 435, 446 or 448, or consent of instructor.

539 Seminar in Differential Equations (1-3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.


547-548 Applied Linear Analysis (3,3) Banach and Hilbert spaces, linear operators and spectral theory with applications to integral and differential equations, optimization, numerical analysis, and quantum mechanics, Sobolev spaces and embedding theorems. Prereq: 445-446.

549 Seminar in Analysis (1-3) May be repeated. Maximum 12 hours.

551-552 Modern Algebra (3,3) Groups, rings, modules and linear algebra, fields and Galois theory. Must be taken in sequence. Prereq: 455-456 or consent of instructor.

553 Linear Programming (3) Theory and applications. Prereq: Consent of instructor or 453 and programming ability.


555-556 Number Theory (3,3) Introduction to algebraic number theory. Prereq: 445-446 or consent of instructor.

559 Seminar in Algebra (1-3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

561-562 Topology (3,3) Topological spaces; metrization; homeomorphic invariants of point sets. Mappings and homotopy. Covering spaces and fundamental group.

567-568 Differential Geometry (3,3) Classical differential geometry in two and higher dimensions: curves and surfaces in Euclidean space, Gauss map, curvature, Gauss-Bonnet theorem, hyperbolic geometry. Manifolds and Riemannian metrics; connections, geodesics, Jacobi fields, sectional curvature. Differential forms and moving frames. Prereq: 445-446 or consent of instructor.

569 Seminar in Topology (1-3) May be repeated. Maximum 12 hours.


575 Matrix Theory and Techniques in Numerical Analysis (3) Advanced topics in study of iterative and direct methods for large systems of linear equations: sparse matrix analysis, relationship to modern computer architectures. Prereq: 453, 471-472, or consent of instructor. May be repeated. Maximum 9 hours. (Same as Computer Science 575.)

577 Optimization (3) Major topics in optimization with problems developed from real-world applications including constrained and unconstrained optimization with analysis of major algorithms and utilization of appropriate software. Prereq: Numerical Algorithms, 453, 445-446.

578 Numerical Methods for Partial Differential Equations (3) Numerical approximation of solutions of partial differential equations including conservation laws and hyperbolic, parabolic, and elliptic problems. Derivation, physical meaning, and implementation of schemes. Prereq: 435 or 512 or 515, Fortran or C, or consent of instructor.

579 Seminar in Numerical Mathematics (1-3) May be repeated. Maximum 12 hours.
581-582 Mathematical Ecology (3,3) Deterministic and stochastic models of populations, communities, and ecosystems. Prereq: 431, 453 or consent of instructor. (Same as Ecology and Evolutionary Biology 581-582.)

583 Mathematical Evolutionary Theory (3) Population genetics and evolutionary ecology. Prereq: 431, 453 or consent of instructor. (Same as Ecology and Evolutionary Biology 585.)

585 Optimal Control Theory (3) Deterministic optimal control. Examples involving calculus of variations, optimal trajectories, and engineering control problems. Introduction to stochastic control. Prereq: 431, 445-446 or consent of instructor.

589 Seminar in Mathematical Ecology (1-3) May be repeated. Maximum 12 hours.

593 Independent Study (1-15) See College of Arts and Sciences.

598 Graduate Reading in Mathematics (1-3) Independent study with faculty guidance. Prereq: Graduate standing and consent of instructor. May be repeated. Maximum 6 hours.

600 Doctoral Research and Dissertation (3-15) P/NP only.


619 Seminar in Applied Mathematics (1-3) May be repeated. Maximum 12 hours.

623-624 Advanced Probability (3,3) Selected topics in modern theory of probability and stochastic processes: Ito’s calculus and stochastic differential equations, integration prediction theory, ergodic theory, probability on algebraic structures, limit theorems, geometry and probability in Banach spaces, probability methods in analysis. Prereq: 523-524 or consent of instructor. May be repeated with consent of department. Maximum 12 hours.

629 Seminar in Combinatorics (1-3) May be repeated with consent of department. Maximum 12 hours.

631-632 Advanced Ordinary Differential Equations (3,3) Theory of ordinary differential equations from advanced viewpoint. Topics from current literature. Subject matter varies according to interests and preparations of students. Prereq: 531-532 or consent of instructor. May be repeated with consent of department. Maximum 12 hours.

635-636 Advanced Partial Differential Equations (3,3) Selected topics in classical and modern theoretical partial differential equations. Prereq: 541-542 or 547-548 or consent of instructor. May be repeated with consent of department. Maximum 12 hours.


643-644 Harmonic Analysis (3,3) Fourier series and Fourier transforms on Euclidean spaces or topological groups: convergence, summability, uniqueness, inversion, duality, Plancherel transform, Hilbert transform, Hardy-Littlewood maximal function, interpolation of operators, or Fefferman-Stein duality. Prereq: 541-542 and 543. May be repeated with consent of department. Maximum 12 hours.

649 Seminar in Analysis (1-3) May be repeated with consent of department. Maximum 12 hours.

651-652 Advanced Modern Algebra (3,3) Selected topics in modern algebra or number theory. Prereq: 551-552 or consent of instructor. May be repeated with consent of department. Maximum 12 hours.

659 Seminar in Algebra (1-3) Prereq: Consent of instructor. May be repeated with consent of department. Maximum 12 hours.

661-662 Modern Topology (3,3) Technical background to current literature in topology. Topics vary. May be repeated with consent of department. Maximum 12 hours.

663-664 Algebraic Topology (3,3) Homology, cohomology and homotopy theories: duality theorems and Hurewicz isomorphism theorem. Prereq: 561-562 and 1 year of abstract algebra, 455-456 or 551-552. May be repeated with consent of department. Maximum 12 hours.

667-668 Advanced Differential Geometry (3,3) Selected topics from Riemannian geometry and analysis on manifolds: Lie groups, metric geometry, spectrum of Laplacian, Hodge Theory, variational problems, curvature and topology of manifolds. Prereq: 567-568 or consent of instructor. May be repeated with consent of department. Maximum 12 hours.

669 Seminar in Topology (3) May be repeated with consent of department. Maximum 12 hours.


679 Seminar in Numerical Mathematics (1-3) May be repeated with consent of department. Maximum 12 hours.

681-682 Advanced Mathematical Ecology (3,3) Selected topics in theoretical and applied mathematical ecology: population, community, ecosystem ecology and applied topics such as demography, ecotoxicology, epidemiology, environmental change, and resource management. Prereq: 581-582. May be repeated. (Same as Ecology and Evolutionary Biology 681-682.)

Department of MICROBIOLOGY

http://web.bio.utk.edu/micro/

Jeffrey M. Becker, Head
Pamela Small, Graduate Liaison

Professors
Becker, J.M., PhD ................................................. Cincinnati
Brian, D.A., PhD/MD ......................................... Michigan State
Moore, R.N., PhD ............................................... Texas (Austin)
Riggins, W.S., PhD ............................................. Yale
Rose, B.T., PhD .................................................. Guelph (Canada)
BVS,...... ....................................................... Bristol (UK)
Saylor, G.S., PhD ................................................ Idaho
Smoll, P.L.C., PhD .............................................. Stanford
White, D.C. (Distinguished Scientist), PhD ........................................ Tufts
Robert, C. ......................................................... Rockefeller

Assistant Professors
Reynolds, T., PhD ............................................... Vanderbilt
Sangster, M.Y., PhD ......................................... Western Australia (Perth)
Saper, T.E., PhD ................................................. Emory University School of Medicine
Wilhelm, S., PhD ............................................... Western Ontario

Research Assistant Professors
Fleming, J., PhD ...................................................... Tennessee
Hauser, M., PhD .................................................... California (Irvine)
Kumaraguru, U., PhD .......................................... Madras (India)
Layton, A.C., PhD ................................................. Purdue
Lee, B-K, PhD ...................................................... Tennessee
Pfifer, S., Ph.D ..................................................... Florida State
Ripp, S., PhD ....................................................... Oklahoma State
Sanseverino, J., PhD ............................................. Lehigh

MAJOR DEGREES
Microbiology .................................................. MS, PhD

The Department of Microbiology offers both the MS and PhD. Students have the option of selecting from a variety of graduate research programs. For a departmental brochure, contact the department head.

ADMISSION

Students are expected to have completed an undergraduate program with a 3.0 or better GPA on a 4.0 system. Included in the undergraduate course credits should be (1) a full year of general biological science, (2) one year of calculus, (3) two years of chemistry, including one year of organic, (4) one year of physics, and (5) an introductory course in microbiology. In many cases, deficiencies in requirements may be removed by taking appropriate courses during the first year of graduate study. The department also requires the general portion of the Graduate Record Examination. A satisfactory score on each part is 550 or higher with rare exceptions. Three letters of recommendation should be submitted by current or former faculty members.
Each new graduate student meets with an advisory committee chaired by the departmental Director of Graduate Studies to plan a program of study for the first one or two semesters until a research advisor is selected. All first-year students participate in a laboratory rotation program during the first semester of study. This program allows the student to adjust smoothly to the research programs of the department, to develop a background of research procedures and concepts, and to facilitate the selection of a research professor. Usually the student selects a research professor toward the end of the laboratory rotation period. The major professor assists in the selection of and carrying out of a suitable research program and in the naming of a thesis or dissertation committee.

MASTER OF SCIENCE

Microbiology Major

The program leading to the MS is designed to provide the student with broad basic knowledge, to permit the acquisition of technical competence in the fundamentals of research, and to encourage creative and independent thinking.

REQUIREMENTS

Two to three calendar years are usually needed for the course of study that has the following requirements: (1) 30 hours including 6 thesis credits; (2) a 3.0 GPA in all courses taken for graduate credit after 12 hours of credit have been earned in courses graded on the A-F system; (3) a 3.0 GPA in courses taken in the department; (4) a complete course sequence in biochemistry or molecular biology; (5) presentation of a research thesis and its oral defense.

DOCTOR OF PHILOSOPHY

Microbiology Major

The program leading to the PhD is designed to develop the student’s ability to pursue independent and original research in microbiology and allied fields, to teach both oral and written communication of the results of research to the scientific community, and to train effective teachers. Students may enter the program after receiving either a bachelor’s or master’s degree. Students who enter with a bachelor’s degree usually receive the PhD after four or five years; those with the master’s degree usually take three or four years to complete the degree.

REQUIREMENTS

Departmental requirements are: (1) a 3.0 GPA in all courses taken for graduate credit after 12 hours of credit have been earned in courses graded on the A-F scale; (2) a 3.0 GPA in courses taken in the department; (3) satisfactory performance in at least one semester as a teaching assistant; (4) one semester of physical chemistry; (5) one course in statistics; (6) two semesters of biochemistry or molecular biology; (7) satisfactory performance in a comprehensive examination that must be attempted before the end of the fifth semester in the program and passed before admission to candidacy; and (8) the presentation of a research dissertation and its oral defense.

GRADUATE COURSES

Microbiology (684)

410 Bacterial Physiology (3) Modern concepts of structure and function of bacterial cell. Prereq: 310.
420 Medical Microbiology (3) Disease-producing microorganisms, including bacteria, rickettsia, chlamydia and fungi. Prereq: 310.
429 Medical Microbiology Laboratory (2) Laboratory exercises in medically important areas of microbiology: microorganisms, pathogenesis and immunology. Prereq: 319, 430. Coreq: 420.
430 Immunology (3) Principles of inflammation and immunity; immunoglobulin structure and theories of formation and diversity; complement, hypersensitivities, cell cooperation and recognitions in immune mechanisms; soluble factors. Prereq: Biology 240.
470 Microbial Ecology (3) Physiological diversity and taxonomy of microorganisms from natural environments. Functional role of microorganisms in natural and simulated ecosystems. Prereq: 310.
500 Thesis (1-15) P/NP only.
502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.
575 Applied Microbiology and Bioengineering (3) (Same as Biosystems Engineering 575; Chemical Engineering 575; Environmental Engineering 575.)
591 Foreign Study (1-15) See College of Arts and Sciences.
592 Off-Campus Study (1-15) See College of Arts and Sciences.
593 Independent Study (1-15) See College of Arts and Sciences.
595 General Seminar (1) Lectures and seminars by invited speakers, faculty, and graduate students. May be repeated. Maximum 18 hours. Satisfactory/No Credit grading only.
596 Laboratory Rotation (1) Familiarization with research areas in department through series of rotations in laboratories of individual faculty members. May be repeated. Maximum 3 hours. Satisfactory/No Credit grading only.
600 Doctoral Research and Dissertation (3-15) P/NP only.
601 Journal Club in Microbial Physiology (1) Readings and discussions based on current literature. May be repeated. Maximum 18 hours. Satisfactory/No Credit grading only.
602 Journal Club in Microbial Pathogenesis (1) Readings and discussions based on current literature. May be repeated. Maximum 18 hours. Satisfactory/ No Credit grading only.
603 Journal Club in Immunology (1) Readings and discussions based on current literature. May be repeated. Maximum 18 hours. Satisfactory/No Credit grading only.
604 Journal Club in Virology (1) Readings and discussions based on current literature. May be repeated. Maximum 18 hours. Satisfactory/No Credit grading only.
605 Journal Club in Microbial Genetics (1) Readings and discussions based on current literature. May be repeated. Maximum 18 hours. Satisfactory/No Credit grading only.
610 Topics in Microbial Physiology (1-3) Prereq: 410 or consent of instructor. May be repeated. Maximum 12 hours.
620 Topics in Microbial Pathogenesis (1-3) Prereq: 420, 430 or consent of instructor. May be repeated. Maximum 12 hours.
630 Topics in Immunology (1-3) Prereq: 430 or consent of instructor. May be repeated. Maximum 12 hours.
640 Topics in Virology (1-3) Prereq: 440 or consent of instructor. May be repeated. Maximum 12 hours.
650 Topics in Microbial and Molecular Genetics (1-3) Prereq: 411 or consent of instructor. May be repeated. Maximum 12 hours.
670 Advanced Topics in Environmental Microbiology (1-3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.
Department of MODERN FOREIGN LANGUAGES AND LITERATURES

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

Chauncey J. Mellor, Interim Head
Stefanie Ohnesorg, Graduate Liaison

Professors
Brady, P., (Shumway Chair of Excellence), PhD.................................................................... University of Paris (Sorbonne)
Brizio-Skow, F., PhD ........................................................................................................... Washington
Campion, E.J., PhD ............................................................................................................. Yale
CreeL, B., PhD ................................................................................................................... California (Davis)
DiMaria, S., PhD ................................................................................................................. Wisconsin
Handelsman, M.H. (Distinguished Professor), PhD .............................................................. Florida
Hodges C.R., PhD ............................................................................................................... Chicago
Holmlund, C., PhD ............................................................................................................. Wisconsin
Levy, K.D., PhD ................................................................................................................... Kentucky
Mellor, C.J., PhD ................................................................................................................ Chicago
Rivera-Rodas, O., PhD ....................................................................................................... California (Davis)
Romeiser, J.B., PhD ............................................................................................................. Vanderbilt
Young, D.J., PhD ................................................................................................................ Texas

Associate Professors
Beauvois, M., PhD ............................................................................................................ Texas
Blackwell, S.H., PhD .......................................................................................................... Indiana
Essif L., PhD ....................................................................................................................... Brown
Hoeving, P., PhD ................................................................................................................. Wisconsin
Kaplan, G., PhD ................................................................................................................ Pennsylvania
LaCure, J., PhD ..................................................................................................................... Indiana
Lee, D.E., PhD ..................................................................................................................... Stanford
McAlpin, M.K., PhD ............................................................................................................ Columbia
Ohnesorg, S., PhD ............................................................................................................... McGill (Canada)
Pervukhina, N.K., PhD ....................................................................................................... Bryn Mawr
Silva-Filho, E., PhD .............................................................................................................. North Carolina

Assistant Professors
Arnold, M.N., PhD ................................................................................................................ Texas
Ayo, A., PhD ........................................................................................................................ Arizona
Canio, L., PhD .................................................................................................................... North Carolina
Cruz Cámera, N., PhD ......................................................................................................... State University of New York (Buffalo)
Duke, D., PhD ..................................................................................................................... Pittsburgh
Gimmel, M., PhD ................................................................................................................. Indiana
Gregory, A., PhD ................................................................................................................ Texas
He, D., PhD .......................................................................................................................... British Columbia
Johnson, E., PhD ................................................................................................................ Tennessee
Horiguchi, N., PhD ............................................................................................................. Pennsylvania

MAJORS
French ................................................................................................................................. MA
German............................................................................................................................... MA
Spanish............................................................................................................................... MA
Modern Foreign Languages ............................................................................................... PhD

The Department of Modern Foreign Languages and Literatures offers graduate programs leading to the Master of Arts degree with majors in French, German and Spanish, and the Doctor of Philosophy degree with a major in modern foreign languages. Inquiries should be addressed to the head of the department.

MASTER OF ARTS

French Major

Thesis Option
- Completion of a minimum of 24 semester hours in coursework plus at least six hours in course 500 Thesis. French 501 is required. A maximum of six hours may be taken at the 400 level, the rest at the 500 level, and under certain conditions the student may take 600-level seminars. If the student chooses to have a minor (such as Italian or Portuguese), at least 24 hours (including 6 hours of thesis) must be taken in the major, 6 in the minor.
  - A thesis, with a minimum of 6 semester hours in course 500.
  - A written examination covering the coursework and selected items from a master reading list.
  - A final oral examination covering the thesis.

Non-Thesis Option
- Completion of at least 30 semester hours, with a maximum of 9 at the 400 level, the rest at the 500 level, including French 501. Under certain conditions, the student may take 600-level seminars. If the student chooses to have a minor (such as Italian or Portuguese), at least 24 hours must be taken in the major, 6 in the minor.
- A research paper from a course, which the candidate substantially expands with the approval of the committee.
- A written examination covering the coursework and selected items from a master reading list.
- A final oral examination to discuss the research paper.

German Major

Thesis Option
The minimum requirements are 24 semester hours of coursework and 6 hours of Thesis 500. German 510 and 519-520 are required, as are three courses on German literature or culture, one of which may be at the 400 level. In addition, students must take three further courses, only one of which may be chosen from 411-412 or 485. All graduate teaching assistants should take 512, and other candidates may take 512 or any other course above 500. A maximum of three 400-level courses may be counted toward the 24 semester hours of course credit. All MA candidates must sit for a standardized language examination, such as the Zentrale Mittelstufenprüfung. Students who are interested in future PhD level study are strongly advised to choose the thesis option.

Non-Thesis Option
The minimum requirements are 30 semester hours of coursework, including at least one 600-level course, for which a seminar paper is required. German 510 and 519-520 are required, and are three courses on German literature or culture, one of which may be at the 400 level. In addition, students must take three further courses, only one of which may be chosen from 411-412 or 485. All graduate teaching assistants should take 512, and other candidates may take 512 or any other course above 500. A maximum of three 400-level courses may be counted toward the 30 semester hours of coursework. A common written exam over the designated reading list is required, as is a standardized language exam, such as the Zentrale Mittelstufenprüfung. Each non-thesis MA candidate will have a committee of three faculty members in German to whom the student will submit a dossier consisting of the seminar paper and one paper previously submitted in a graduate course. The length and type of the papers is described in greater detail in the Manual for Graduate Students in German.
Spanish Major

Thesis Option

- Completion of a minimum of 24 semester hours in coursework plus at least 6 hours in course 500 Thesis. Spanish 550 is required. A maximum of 6 hours may be taken at the 400 level, the rest at the 500 level, and under certain conditions the student may take 600-level seminars. If the student chooses to have a minor (such as Italian or Portuguese), at least 24 hours (including 6 hours of thesis) must be taken in the major, 6 in the minor.
- A thesis, with a minimum of 6 semester hours in course 500.
- A written examination covering the coursework and selected items from a master reading list.
- A final oral examination covering the thesis.

Non-Thesis Option

- Completion of at least 30 semester hours, with a maximum of 6 at the 400 level, the rest at the 500 level, including Spanish 550. Under certain conditions, the student may take 600-level seminars. If the student chooses to have a minor (such as Italian or Portuguese), at least 24 hours must be taken in the major, 6 in the minor.
- Three term papers that have been accepted by the student’s advisory committee.
- A written examination covering the coursework and selected items from a master reading list.

DOCTOR OF PHILOSOPHY

Modern Foreign Languages Major

The PhD with a major in modern foreign languages requires advanced training in a major language and either a second language or applied linguistics.

ADMISSION

Applicants must have completed a BA in either French, German or Spanish to be accepted into this program. Both graduates of institutions in the United States and those with undergraduate degrees from institutions outside the United States must have a grade point average of at least 3.0. Consideration will also be given to applicants who do not have an undergraduate degree in one of the three foreign languages but do have the equivalent of an undergraduate major in one of them.

REQUIREMENTS

Candidates must complete a minimum of 63 semester hours of coursework beyond the bachelor’s degree in addition to 24 hours of doctoral research and dissertation.

For candidates with French or Spanish as a first concentration, two tracks are available:
- **Track I.** The coursework for Track I must be distributed as follows: at least 39 hours in the first concentration; at least 18 hours in the second concentration; and at least 6 hours in a cognate field or in either the first or second concentration as approved by the student’s graduate committee.
- **Track II.** The coursework for Track II must be distributed in this way: at least 45 hours in the first concentration; at least 12 hours in the second concentration; and at least 6 hours in a cognate field or in either the first or second concentration as approved by the student’s graduate committee. Because Track II students will have taken 12 graduate hours instead of 18 in the second concentration, they will normally not be eligible to teach that field at institutions which follow SACS guidelines for college foreign language teaching.

The coursework for all concentrations must be distributed as follows:

- **First Concentration: German.** A minimum of 39 hours of German courses beyond the bachelor’s degree, distributed as follows:
  - **400 level:** A maximum of 6 hours of 400-level classes taken for the MA may be applied.
  - **500 level:** A minimum of 21 hours must be taken. These must include German 512, 519, 520, and 560. These hours are excluded. If 512 is used as part of a second concentration in applied linguistics, another course must be substituted in the first concentration.
  - **600 level:** A minimum of 12 hours must be taken, exclusive of dissertation hours.

- **First Concentration: French or Spanish.** A minimum of either 39 (Track I) or 45 (Track II) hours of French or Spanish courses beyond the bachelor’s degree, distributed as follows:
  - **400 level:** A maximum of 6 hours of 400-level classes taken for the MA may be applied.
  - **500 level:** A minimum of 21 (Track I) or 27 (Track II) hours must be taken. These must include French 512, 519, 584 or Spanish 512 and 550. These hours are excluded. If 512 is used as part of a second concentration in applied linguistics, another course must be substituted in the first concentration.
  - **600 level:** A minimum of 12 hours must be taken, exclusive of dissertation hours.

- **Second Concentration.** A minimum of 18 (German or French or Track I) or 12 (Track II) hours beyond the bachelor’s degree, taken in the field of applied linguistics or in a second language, or both French, German, Italian, Portuguese (Track II only), Russian or Spanish. For Track I and German, 12 of these hours must be at the 500 level or above. For Track II, 3 of these hours must be at the 500 level or above.

- **French students choosing applied linguistics.** Must take French 421 or 429; 425; 512; and 9 (Track I) or 3 (Track II) hours of appropriate electives in English or French. German students choosing applied linguistics must take German 425, 435 or 510, 512, 3 hours of German linguistics, such as 426, 436, 631, or 632, and 6 hours of linguistics electives in English or German. Spanish students choosing applied linguistics must take Spanish 421 or 429; 425; 512; and 9 (Track I) or 3 (Track II) hours of appropriate electives in English or Spanish. The student’s graduate advisor must approve the electives chosen.
• **Cognate Field.** Six hours in graduate courses numbered 400 and above in a field outside the department or language family of the first concentration but related to the student’s principal area of research. Students choosing applied linguistics as a second concentration are strongly urged to take their cognate work in a second language. With the consent of the student’s graduate committee, the 6 hours in the cognate field may be substituted by 6 hours in either the first or second concentration.

• **Additional requirements.** For any languages taken as a first or second concentration, a student must demonstrate competence by taking a test. The test will include reading, writing, listening, and speaking, and should be completed by the time the student reaches 40 hours of study beyond the bachelor’s degree. Standardized examinations that may be used for this purpose include applicable portions of either the National Teachers Examination, the MLA Examination for Teachers and Advanced Students, or the proficiency standards of the United States Foreign Service Institute (FSI).

For students choosing applied linguistics as an area of second concentration, reading competence in a second language is required. Competence will be determined by translation of a text from the foreign language into English, the test to be administered by the department.

A comprehensive examination on the language and literature of the first and second concentrations must be passed before the student may be admitted to candidacy. The candidate is required to defend his/her dissertation in an oral examination. Central emphasis is put on the doctoral dissertation as a final test of the candidate’s scholarly qualifications.

Graduate Teaching Assistants with a second concentration in another language should have the opportunity and will be strongly encouraged to instruct in the languages of both their first and second concentration, subject to staffing needs.

Doctoral students are strongly encouraged to reside and study abroad and will be assisted in identifying potential sources of financial support (e.g., Fulbright, McClure, Rotary fellowships).

**GRADUATE COURSES**

**Asian Languages (144)**

431 Readings in Chinese Literature (3) Prereq: Mastery of intermediate-level Chinese or consent of instructor. May be repeated. Maximum 9 hours.

451 Readings in Pre-Modern Japanese Literature (3) Prereq: Mastery of intermediate-level Japanese or consent of instructor.

452 Readings in Modern Japanese Literature (3) Prereq: Mastery of intermediate-level Japanese or consent of instructor.

**French (405)**


411 French Literature of the 16th Century (3) Highlights of 16th-century French literature. Excerpts from Rabelais and Montaigne; readings of poems from writers from Lyon and members of Pléiade. Prereq: 300-level literature course.


413 French Literature of the 18th Century (3) Major works of Enlightenment. Prereq: 300-level literature course.


420 French Cinema (3) French cinema from earliest days through New Wave directors. Prereq: 300-level literature course. May apply toward major. (Same as Cinema Studies 420.)

421 Phonetics (3) Foundation in science of phonetics. Practical exercises and individual performance. Graduate credit not offered to students majoring in Romance language. Prereq: 333 or 334 or 345 or permission of department.

422 Advanced Grammar (3) Improving one’s written French by studying basic and more refined structures of French language. Writing creative free-style compositions. Prereq: 333 or 334 or 345.

423-424 Advanced Conversation (1,1) Informal conversation with native speaker on contemporary topics. Stresses in-class contact rather than outside preparation. Prereq: 333 or 334 or 345. Meets 2 hours a week.

425 Introduction to Descriptive Linguistics (3) Theory and practice of techniques of linguistic analysis in sub fields of phonetics, phonology, morphology, syntax, semantics, pragmatics and historical linguistics; discussion of relevance to learning and teaching of foreign languages and to study of literary texts. Recommended prereq: Language, Linguistics and Society. (Same as German 425; Linguistics 425; Russian 425; and Spanish 425.)

426 Methods of Historical Linguistics (3) (Same as German 426; Linguistics 426; Russian 426; Spanish 426.)

429 Romance Linguistics (3) Development of Classical Latin through Vulgar Latin into major Romance languages. (Same as Linguistics 429; Spanish 429.)


431 Highlights of French Civilization (3) Survey of French civilization from the Gauls to World War II. Historical events, daily life, all forms of arts. Prereq: 300-level literature course.

432 Contemporary French Culture (3) Current French cultural issues placed in historical perspective with comparative emphasis. Taught in English; readings in French for majors.

434 Literature of Quebec (3) Survey of literature of Quebec as well as French literature connected with North America. Readings include explorer and missionary works, such as Voyages of Champlain and Journals of Jesuits, and literature of contemporary Quebec. Prereq: 300-level literature course.

445 Advanced French for Business (3) Advanced contemporary French language and culture as it relates to business traditions. Comparative approach to explore differences and similarities between francophone business culture(s) and those of North America and Japan. Building knowledge of business terminology while being sensitized to cultural differences and dangers of simplistic stereotyping. Prereq: 345 or consent of instructor.

500 Thesis (1-15) P/NP only.

501 Techniques in Literary Analysis (3) Required for MA program. Close stylistic analysis of texts representative of different eras and of different genres. Development and improvement of student’s written French.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

510 The French Language (3) French as spoken and written from Medieval period to present.

512 Teaching a Foreign Language (3) Practical application of methods for teaching and evaluating basic language skills and foreign language skills, and cultural aspects through seminars, demonstrations, peer teaching, and observation of foreign language classes. Required of all MA and PhD students holding Graduate Teaching Assistantships, except those whose previous training or experience warrants their being excused by department.

515 Technology Enhanced Language Learning (3) Introduction to TELL. Overview of existing software, programs, and professional literature on topic. Hands-on development of instructional Web site for teaching language, culture, or literature.

519 Bibliography and Methods of Research (3) Critical research tools and scholarly contributions in French literature and language. Practical exercises on compiling of scholarly data using computer-based and non-computer sources.

520 French and Francophone Film (3) French and Francophone culture through film.

530 French and Francophone Theater (3) Changing approaches to French and Francophone Theater.
540 French Literature and Culture I (3) Literary and cultural heritage of French Middle Ages.
550 French Literature and Culture II (3) Literary and cultural heritage of 16th- and 17th-century France.
560 French Literature and Culture III (3) Literary and cultural heritage of 18th- and 19th-century France.
570 French and Francophone Literature and Culture I (3) Literary and cultural heritage of France and other Francophone countries in first part of 20th century.
573 French and Francophone Literature and Culture II (3) Literary and cultural heritage of France and other Francophone countries from late 20th-century to present.
580 Critical Moments in French and Francophone Studies, or Linguistics (3) Contributions of France and Francophone world to evolution of literature, society, and ideas. May be repeated. Maximum 6 hrs with consent of department.
584 Modern Theory and Criticism (3) Survey of twentieth century critical theory, including psychoanalysis, Marxism, structuralism and more.
591 Foreign Study (1-15) See College of Arts and Sciences.
592 Off-Campus Study (1-15) See College of Arts and Sciences.
593 Independent Study (1-15) See College of Arts and Sciences. Satisfactory/No Credit or letter grade.
594-595 French Directed Readings (3,3) P/NP only.
600 Doctoral Research and Dissertation (3-15) P/NP only.
610 Doctoral Seminar in French and Francophone Studies, or Linguistics (3) Content varies. May be repeated. Maximum 12 hours with consent of department.

**German (433)**

331-332 Elements of German for Upper-Division and Graduate Students (3,3) Elements of language, elementary and advanced readings, and a final 10,000 word translation project. Open to graduate students preparing for language examinations, and upper-division students desiring reading knowledge of the language. No credit for students having completed 101-102. 332 may be repeated. Maximum 6 hours. Undergraduate credit only.
411-412 Advanced Conversation and Composition (3,3) Prereq: 311-12 or equivalent or consent of department.
415 Special Topics (3) Topics vary. May be repeated. Maximum 6 hours.
416 Metropolis Revisited (3) The 20th Century German or Austrian metropolis in the mirror of history, literature, theory, art, architecture, and music. Taught in English. Prereq: German 101-102 or simultaneous enrollment in that sequence and consent of instructor.
419 German Fairy Tales and Literary Fantasies (3) How and why forms of literary fantasies ranging from apocalyptic dreams to enchanted visions have changed over the centuries. Strong interdisciplinary component, tracing interconnections between philosophy, psychology, religion and literary history, as well as exploring the relationship between literary, musical and artistic representations of specific themes. Prereq: 6 hours of 300 courses or equivalent, excluding 331-332.
420 Selected Topics in German Literature from 1750 to the Present (3) Prereq: 6 hours of 300-level courses (excluding 331-332 and courses in English translation) or equivalent.
425 Introduction to Descriptive Linguistics (3) (Same as French 425; Linguistics 425; Russian 425; Spanish 425.)
426 Methods of Historical Linguistics (3) Phonetics, distinctive feature analysis, sound change types, nature of sound change, principles of reconstruction, and fundamental assumptions about language change through time. Survey of non-phonological linguistic change, language families, Proto-Indo-European, and other proto languages. Prereq: 6 hrs of upper division foreign language courses (excluding courses in translation or graduate reading courses). (Same as French 426; Linguistics 426; Russian 426; Spanish 426.)
431 Images of Nature and the Body in German Culture (3) Representations of nature from idyllic refuge and object of praise to scientific object and precarious resource. Other themes include sexuality, the body, childhood, and aging. Discussions based on literary and documentary texts and films. Prereq: 6 hours of 300 courses or equivalent, excluding 331-332.
432 German Creative Thinking: Interdisciplinary Dialogues (3) Interdisciplinary connections between German literature and art, music, philosophy, theatrical praxis, psychology, dance, anthropology, history, and the sciences. Comparative analysis of literary and non-fictional texts, films, and other media. Prereq: 6 hours of 300 courses or equivalent, excluding 331-332.
433 Nation, Race, and Ethnicity (3) Examination of cultural constructions of nation, race, and ethnicity and how they have challenged each other and developed in German speaking countries since the eighteenth century. Close study and analysis of fiction, non-fiction, and films that address controversial topics such as assimilation, integration, racial/ethnic identity formation and multiculturalism. Prereq: 6 hours of 300 courses or equivalent, excluding 331-332.
434 Extraordinary Wo(Men)-Outcasts, Rebels, Martyrs and Saints (3) Examination of German texts and visual media that have challenged mainstream thinking throughout the centuries. Strong interdisciplinary component, focusing on literary and artistic forms that depict struggles involving religion, politics and gender. Prereq: 6 hours of 300 courses or equivalent, excluding 331-332.
435 Structure of the German Language (3) Contrastive English-German segmental and suprasegmental phonemes, contrastive English-German linguistic structures, selected topics in advanced German grammar and syntactic analysis. Prereq: 6 hours of upper-division German language courses (excluding courses in translation and graduate reading courses). (Same as Linguistics 435.)
436 History of the German Language (3) Development of German language from Indo-European through Proto-Germanic, Old High German, Middle High German to New High German. Internal and external linguistic history of German speech. Prereq: 6 hrs of upper division German language courses (excluding courses in translation or graduate reading courses). (Same as Linguistics 436.)
485 Business German (3) Survey of German used in fields of business, government, administration, and economics. Prereq: 6 hours of upper-division German courses, excluding courses in translation and 331 and 332.
494 German Community Service Practicum (1) Supervised by the director of the Lower-Division German program, students either assist German classes at local schools or perform supervised service with local institutions that promote awareness of German culture among the general public. Prereq. 18 hours of upper division German courses and consent of program chair. Maximum of one hour credit per semester. May be repeated for a maximum of 3 hours.
500 Thesis (1-15) P/NP only.
502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.
510 German Phonetics and Advanced Grammar (3) Advanced work in phonetics, pronunciation, and selected topics in German grammar. For teachers and prospective teachers. Prereq: Consent of instructor.
512 Teaching a Foreign Language (3) Practical application of methods for teaching and evaluating basic language skills and foreign language skills, and cultural knowledge through seminars, demonstrations, peer teaching, and observation of foreign language classes. Required of all MA and PhD students holding GTAs, except those whose previous training or experience warrants excuse by department.
519 Bibliography and Methods of Research (3) Critical research tools and scholarly contributions in German literature and language. Practical exercises on data cataloging, scholarly data planning, computer-based and real-computer sources.
541 Medieval German Language and Literature (3) Introduction to Middle High German.
550 Studies in German Literature (3) Content varies. May be repeated. Maximum 6 hours.
552 German Enlightenment, Rococo, and Sturm und Drang (3) Content varies. May be repeated. Maximum 6 hours.
553 German Classicism and Romanticism (3) Content varies. May be repeated. Maximum 6 hours.
554 German Realism and Naturalism (3) Content varies. May be repeated. Maximum 6 hours.
555 Modern German Literature 1890-1945 (3) Content varies. May be repeated. Maximum 6 hours.
556 Modern German Literature 1945-Present (3) Content varies. May be repeated. Maximum 6 hours.
560 German Literary Theory and Criticism (3)
561-562 Directed Readings in German Language and Literature (3,3)
591 Foreign Study (1-15) See College of Arts and Sciences.
592 Off-Campus Study (1-15) See College of Arts and Sciences.
593 Independent Study (1-15) See College of Arts and Sciences. Satisfactory/No Credit or letter grade.
600 Doctoral Research and Dissertation (3-15) P/NP only.
621-622 Seminar in German Literature (3,3) May be repeated. Maximum 18 hours.
631-632 Seminar in German and Germanic Philology (3,3)
Italian (584)
401 Dante and Medieval Culture (3) Introduction to significance of this great Italian writer. Prereq: 212 or consent of instructor.
402 Petrarch and Boccaccio (3) Prereq: 212 or consent of instructor.
403 Literature of the Rinascimento (3) From Pulci to Tasso, Quattrocento and Cinquecento. Prereq: 212 or consent of instructor.
405 Modern Italian Poetry (3) From Pascoli to Montale. Prereq: 212 or consent of instructor.
406 The Modern Italian Novel (3) From Manzoni to Calvino. Prereq: 212 or consent of instructor.
409 Directed Readings (3)
410 Italian Theatre (3) Survey of Italian theatre from Renaissance to present. Prereq: 212 or consent of instructor.
421 Topics in Italian Literature and Cinema (3) Italian literature and cinema from 1930 to present focusing on literary works translated into English and adapted into film. Investigation of relationship between literature and cinema and achievement of greater understanding of Italian culture since 1930. Films in Italian with English subtitles. Maximum 6 hours. (Same as Cinema Studies 421.)
510 Readings in Italian Literature (3) Topics vary. May be repeated with consent of department.
591 Foreign Study (1-15) See College of Arts and Sciences.
592 Off-Campus Study (1-15) See College of Arts and Sciences.
593 Independent Study (1-15) See College of Arts and Sciences.
Portuguese (811)
400 Portuguese for Speakers of Another Romance Language (3) Accelerated class for beginning students of Portuguese with strong background in another Romance language. Introduction to grammar, reading and culture of Portugal and Brazil. Prereq: 3 hours at 300-level in another Romance language or equivalent.
431-432 Topics in the Literature and Language of Portuguese-speaking World (3,3) Outstanding works of literature and culture from Portuguese countries. Topics may vary. Prereq: At least one course at the 300-level or the equivalent. May be repeated. Maximum 12 hours.
591 Foreign Study (1-15) See College of Arts and Sciences.
592 Off-Campus Study (1-15) See College of Arts and Sciences.
593 Independent Study (1-15) See College of Arts and Sciences.
Russian (886)
401-402 Advanced Grammar, Conversation, and Composition (3,3) Prereq: 312 or equivalent.
425 Introduction to Descriptive Linguistics (3) (Same as French 425; German 425; Linguistics 425; Spanish 425)
426 Methods of Historical Linguistics (3) (Same as French 426; German 426; Linguistics 426; Spanish 426.)
430 Selected Topics in Russian Literature (3) Content varies. When content varies, may be repeated. Maximum 9 hours.
451-452 Senior Seminar (3,3) For majors in Russian; minors admitted at discretion of instructor. Intensive study of language, literary style, and literary criticism based on selected major novels.
510 Russian Phonetics and Advanced Grammar (3) Phonetics, pronunciation, stylistics, and selected topics in Russian grammar. For teachers and prospective teachers. Prereq: Consent of instructor.
550 Studies in Russian Literature (3) Content varies. May be repeated. Maximum 9 hours.
591 Foreign Study (1-15) See College of Arts and Sciences.
592 Off-Campus Study (1-15) See College of Arts and Sciences.
593 Independent Study (1-15) See College of Arts and Sciences.
Spanish (924)
421 Phonetics (3) Prereq: 323 or consent of instructor.
422 Advanced Grammar and Translation (3) Structure of grammatical system of Spanish. In-depth analysis of selected syntactic phenomena with practical illustration/application and exercise in Spanish-English and English-Spanish translation. Finer points of grammatical structures. Not available to native or bilingual students of Spanish without consent of department. Prereq: 323.
423 Advanced Composition and Conversation (3) Development of writing and speaking skills at advanced level, wide range of topics and subjects. Variety of in-class and extra-class activities. Not available for credit for students whose level of proficiency in Spanish is superior as defined by the ACTFL Proficiency Guidelines or for graduate students in the Spanish MA or PhD programs. Prereq: 323 or consent of department.
425 Introduction to Descriptive Linguistics (3) (Same as French 425; German 425; Linguistics 425; Russian 425.)
426 Methods of Historical Linguistics (3) (Same as French 426; German 426; Linguistics 426; Russian 426.)
429 Romance Linguistics (3) (Same as French 429; Linguistics 429.)
430 Topics in Hispanic Linguistics (3) Spanish language through different areas of linguistics: phonology, morphology, syntax, semantics, sociolinguistics, dialectology and second language acquisition. Prereq: 323, 332, 333 and completion of an additional 9 hours of upper-division Spanish. May be repeated. Maximum 6 hours with consent of department. (Same as Linguistics 431.)
433 Images of Woman in Hispanic Literature (3) Major Hispanic texts (and/or women authors) in light of relation of female individuality to particular social context, role of women in society, patriarchal tradition, woman as cultural and as aesthetic value (“the feminine symbolic”), and feminist theoretical issues. Prereq: 323, 330 and completion of 9 additional hours of upper-division Spanish.
434 Hispanic Culture through Film (3) Analysis of selected films on subjects concerning life, culture, and artistic traditions in the Hispanic world; exploration of ideological, philosophical, social, and political implications of films and comparison of them with treatments of related subjects in other types of artistic production. Prereq: 323, 330, and completion of 9 additional hours of upper-division Spanish. Taught in Spanish. May be repeated. Maximum 6 hours with consent of department. (Same as Cinema Studies 434.)
461 Special Topics (3) Aspects of Hispanic literature, culture, linguistics, or foreign language pedagogy. Topics vary. May be repeated with consent of department. Maximum 6 hours.
465 Latin American Film and Culture (3) Latin American and Latino/a films and videos from 1900s to present as works of art and in light of political, cultural, and social contexts. Taught in English. Graduate credit available only for Latin American Studies and Cinema Studies majors. 1 hour lecture, 2 hours screening, and 1 hour discussion. (Same as Latin American Studies 465; Cinema Studies 465.)
479 Disenchedanted Texts in Hispanic Literature (3) Texts representing trends and periods of renewal in Spanish and Latin American countries. Selected topics on traditions in crisis. Content varies. Prereq: 323, 330, and completion of 9 additional hours of upper-division Spanish. May be repeated. Maximum 6 hours with consent of department. (Same as Latin American Studies 479.)
480 Social Forces in Hispanic Literary Expression (3) Analysis of major Hispanic texts that address factors and events that influenced and/or continue to influence social and cultural evolution of Hispanic world, including literature itself. Prereq: 323, 330 and completion of 9 additional hours of upper-division Spanish. May be repeated. Maximum 6 hours with consent of department.
482 Trends in Hispanic Thought (3) Intellectual/philosophical currents represented in literary works, selected thinkers, or movements from historical periods of Spain and Latin American countries. Prereq: 323, 330, and completion of 9 additional hours of upper-division Spanish. May be repeated. Maximum 6 hours with consent of department.
484 Race, Ethnicity, and Nation in Hispanic Literature (3) Close reading and analysis of literary texts that deal with issues of race and ethnicity in Hispanic world, with regard to identity and concepts of nationhood. Topics: mestizaje; conceptual distinctions between race and ethnicity in Latin America; indigenismo; afrocentrism; issues of monarchy and empire; relationship between Jews, Christians, and Moors in Spain. Prereq: 323, 330, and completion of 9 additional hours of upper-division Spanish. May be repeated. Maximum 6 hours with consent of department.
486 Literary and Artistic Movements in the Hispanic World (3) Relationships (thematic, cultural, socio-political, aesthetic, philosophical, etc.) between specific trends in literature and other artistic media, in light of historical contexts in which those relationships emerged. Prereq: 323, 330, and completion of 9 additional hours of upper-division Spanish. May be repeated. Maximum 6 hours with consent of department.
489 Topics in Hispanic Civilization (3) Analysis of major trends, issues and/or movements in the civilizations of Spain and Spanish America. Political, literary, and cultural perspectives dealing with topics from Middle Ages to present day. Prereq: 323, 330, and completion of 9 additional hours of upper-division Spanish. May be repeated. Maximum 6 hours with consent of department.
500 Thesis (1-15) P/NP only.
502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

512 Teaching a Foreign Language (3) Practical application of methods for teaching and evaluating basic language skills and cultural aspects through seminars, demonstrations, peer teaching, and observation of foreign language classes. Required of all MA and PhD students holding Graduate Teaching Assistantships, except those whose previous training or experience warrants their being excused by department.

531 Old Spanish (3) Evolution of Spanish language from its origins through 15th century.

532 Medieval Spanish Literature (3) Critical study of medieval literature. Nature and evolution of major literary genres during Spanish Middle Ages, and socio-historical contexts of medieval works. May be repeated. Maximum 6 hours with consent of department.

533 Golden Age Prose (3) Wide range of prose fiction in Spain during 16th and 17th centuries: Moorish, picturesque, sentimental, pastoral and exemplary novels, and dialogues.

534 Don Quijote (3) Cervantes' masterpiece in socio-cultural and literary context of its times: study of thematic, structural, and stylistic issues: crisis of aristocracy, Quixotic "madness," discrepant cognitive and ethical perspectives, satiric irony, culture of sentiment, and Cervantes' legacy to subsequent literary periods. Content varies. May be repeated. Maximum 6 hours with consent of department.

535 Golden Age Poetry (3) Garcilaso, Fray Luis de León, San Juan de la Cruz, Lope de Vega, Quevedo, and Góngora.

537 Golden Age Drama (3) Major dramatists and their plays: Lope de Vega, Tirso de Molina, Ruiz de Alarcón, Guíllén de Castro, Calderón de la Barca, Moreto, and Rojas Zorrilla.


541 19th-Century Spanish Prose (3) Costumbromismo, realism, and naturalism in the novel, short story, and essay as represented in major authors: Larra, Mesonero Romanos, Fernán Caballero, Alarcón, Valera, Palacio Valdés, Pereda, Galdós, Parodi Bazán. Content varies. May be repeated. Maximum 6 hours with consent of department.

542 20th-Century Spanish Literature: Generation of '98 through Civil War (3) Major achievements and representative directions in literature of Spain through Civil War years.

543 20th-Century Spanish Literature: Post-Civil War through Present (3) Principal achievements and representative directions in literature of Spain from Post-Civil War period to present.

550 Techniques of Literary Analysis and Research Methods (3) Theoretical and critical essays on various techniques of literary analysis. Exploration of bibliographical and research materials.

551 Special Topics in Hispanic Literature or Linguistics (3) May be repeated. Maximum 6 hours.

552 Directed Readings (3)

561 Spanish American Colonial Literature (3) From pre-Columbian era through 18th century. Reading and analysis of selected works from Colonial Spanish American period and their Continental sources. Indigenous texts and authors. Content varies. May be repeated. Maximum 6 hours with consent of department.

562 Nineteenth Century Spanish American Literature and Nation Building (3) Analysis of Spanish American foundational texts in light of independence and construction of concepts of national identity. Content varies. May be repeated. Maximum 6 hours with consent of department.

571 Spanish American Narrative: Criollismo to 1950 (3) Critical study of major trends and movements that shaped Spanish American narrative during first half of 20th century. Content varies. May be repeated. Maximum 6 hours with consent of department.

572 Spanish American Narrative: Boom to Present (3) Critical study of major trends and movements that established Spanish American narrative as influential force in world literature during second half of 20th century. Content varies. May be repeated. Maximum 6 hours with consent of department.

573 Regional Approaches to Interpreting Spanish American Literature (3) Interpretation of Spanish-American literature taking into consideration regional differences attributable to such factors as race, geography, immigration, and economic development. Key regions include Mexico and Central America, Caribbean, Andean countries, and the Southern Cone. Course readings vary between specific regional perspective and transregional one. Content varies. May be repeated. Maximum 6 hours with consent of department.

574 Spanish American Modernismo and Vanguardismo (3) Critical study of principal writers and literary works associated with Spanish American modernismo and vanguardismo published between 1880 and 1950. Concepts and expressions of modernity as reflected in literature of period. Content varies. May be repeated. Maximum 6 hours with consent of department.

575 Spanish American Modernismo and Vanguardismo (3) Critical study of major trends and movements that shaped Spanish American narrative during first half of 20th century. Content varies. May be repeated. Maximum 6 hours with consent of department.

576 Contemporary Spanish American Poetry (3) Critical study of major poets in Spanish America from 1950 to present. Content varies. May be repeated. Maximum 6 hours with consent of department.

577 Contemporary Spanish American Theater (3) Reading and analysis of Spanish America's major dramatic works published and performed since 1950. Content may be repeated. Maximum 6 hours with consent of department.


579 Spanish American Literary Criticism (3) Major works in which Spanish Americans have developed strategies to define, organize, and catalog literature published throughout continent. Critical approaches that surpass European and other non-Spanish American critical perspectives. Content may be repeated. Maximum 6 hours with consent of department.

591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences. Letter or Satisfactory/No Credit grading.

600 Doctoral Research and Dissertation (3-15) P/NP only.

621 Seminar in Spanish Literature (3) Topics vary in field of Peninsular literature. May be repeated with consent of department. Minimum 9 hours.

631 Seminar in Spanish American Literature (3) Topics vary. May be repeated with consent of department. Minimum 9 hours.

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School of MUSIC

http://www.music.utk.edu

Roger L. Stephens, Director
Angela L. Batey, Associate Director for Graduate Studies
Barbara Murphy, Associate Director for Undergraduate Studies

Professors

Brock, J.P., MM ....................................................Alabama
Coker, J., MA ......................................................Sam Houston
Combs, F.M., MA ..................................................Missouri
Jacobs, K.A., DMA .............................................Texas
Leach, C.F., DM ..............................................Northwestern
McCormann, W.S., MM ........................................Wisconsin
Clelland, D.K., MA ............................................Columbia
Moore, M.C., PhD .............................................Michigan
Northrop, D.B., DMA .........................................Yale
Pederson, D.M., PhD ........................................Iowa
Sousa, G.D., PhD ..............................................Ohio State
Stephens, R., MM ............................................East Carolina
Stutzenberger, D.R., DMA ................................Maryland

Associate Professors

Adams, F., MM .................................................Tennessee
Batey, A.L., DMA ..............................................South Carolina
Binder, S., DM ...............................................Florida State
Boling, M., MM ................................................Tennessee
Brown, D.R. ......................................................Memphis
Brunell, D., DM ................................................Indiana
Carter, P.Z., MM ...............................................Colorado
Davis, D.C., PhD .............................................Iowa
Freeman, C., MPA ..............................................Oklahoma City
Gay, L.C., PhD ................................................Columbia
MISSION STATEMENT

The School of Music provides specialized training in music to prepare students for professional work or advanced study; for teaching music in the elementary and secondary schools, and in higher education; and for general cultural enrichment. The curriculum of the School of Music, therefore, is designed to present the learning of music as an integrated whole. Solo and ensemble performance, theoretical and historical studies, concert attendance, and electives both within and outside the school are intended to provide a balanced education. The school also provides general music studies and performance.

MASTER OF MUSIC

Music Major

The School of Music offers the Master of Music degree with concentrations in accompanying, choral conducting, composition, instrumental conducting, jazz, music education, music theory (with an optional emphasis in music technology), musicology, performance (organ, piano, strings, voice, winds, and percussion), and pedagogy (piano or vocal).

Applicants must have completed an undergraduate degree that is approximately equivalent in music requirements to degrees conferred by the University of Tennessee, Knoxville, with a major appropriate to the applicant’s prospective area of concentration on the master’s level.

Applicants who plan to pursue the concentration in performance or music education are required to audition for the appropriate area faculty. Applicants for admission to the program in composition must submit scores and tape recordings of representative works. Applicants for the concentration in jazz must audition in jazz improvisation and jazz piano proficiency and interview with members of the faculty in this area. Other applicants are required to have an interview with members of the faculty of the prospective area of concentration.

All entering master’s degree students are required to take Diagnostic Examinations in music theory, ear-training, and music history/literature. These examinations are given by the School of Music at the beginning of each semester.

REQUIREMENTS

A minimum of 33 semester hours of coursework is required for the Master of Music degree. These hours are specifically distributed according to the area of concentration. All concentrations require coursework in music bibliography, music history/literature and music theory and allow for elective courses. Specific curricula are available from the school. All concentrations require a written and oral final examination.

A thesis is required of students in composition, musicology, and music theory. A graduate recital or performance project is given in lieu of thesis by students with concentrations in performance, pedagogy, jazz, accompanying, choral conducting, and instrumental conducting.

The concentration in music education is designed for persons who hold a bachelor’s degree in music or music education and certification to teach music in the public schools. Both thesis and non-thesis options are available.

GRADUATE COURSES

Music Education (707)

510 Foundations of Music Education (3) Historical, philosophical and aesthetic bases. Prereq: Consent of instructor.

520 Research in Music Education (3) Definition of research problems, data collection and analysis, and research report writing. Application of knowledge of research techniques to analysis of existing research literature in music education. Prereq: Consent of instructor.


570 Studies in Multicultural Music Education (3) Study of music literature, art and customs of various cultures appropriate for students in K-8. Strategies and techniques for teaching music at this level.

571 Musical Repertoire Laboratory (1) Performance of music from various cultures; production of music appropriate for students in grades K-8. Singing, dancing, acting, costumes, set design, traditional and non-traditional instrumental ensembles. Limited to students majoring or concentrating in art, dance or theater. Prereq or coreq: 570. May be repeated. Maximum 2 hours.

574 Analysis for Teaching for Professional Development (2) Strategies to document and analyze effectiveness of teaching and professional development. Study and application of various approaches. Coreq: 575.

575 Professional Internship in Teaching (1-8) Teaching and teaching-related experiences in professional settings in public schools. Enrollment limited to post-baccalaureate students in professional year program. Prereq: Admission to Teacher Education program and consent of School of Music. May be repeated. Maximum 12 hours. Satisfactory/No Credit grading only.

580 Seminar in Music Education (3) Class investigation and individual reporting of pertinent topics and issues in music education. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

590 Special Topics in Music Education (1-3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

591 Clinical Studies (4) Group and individual seminar activities during full-time internship. Application and evaluation of professional core competencies. Completion and presentation of portfolio and analysis of teaching project. Coreq: 575.

593 Special Problems in Music Education (3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

Music Ensemble (708)

Prerequisite: By audition or consent of instructor.

502 Jazz-Saxophone Ensemble (1) May be repeated. Maximum 4 hours.

503 Small Jazz Ensemble (1) May be repeated. Maximum 12 hours.

504 Jazz Ensemble (1) May be repeated.
505 Studio Orchestra (1) May be repeated. Maximum 12 hours.
506 Trombone Choir (1) May be repeated.
510 Percussion Ensemble (1) May be repeated.
511 Marimba Choir (1) May be repeated.
515 Chamber Music Ensemble (1) May be repeated. Maximum 12 hours.
530 Chamber Singers (1) May be repeated.
540 Opera Theatre (1) May be repeated.
550 Concert Band (1) May be repeated.
552 Symphonic Band (1) May be repeated. Maximum 12 hours.
553 Wind Ensemble (1) May be repeated. Maximum 12 hours.
554 Varsity Band (1) May be repeated.
559 Marching Band (1) May be repeated.
570 Symphony Orchestra (1) May be repeated.
580 Concert Choir (1) May be repeated.
583 Men's Chorale (1) May be repeated. Maximum 4 hours.
589 Women's Chorale (1) May be repeated.
599 Accompanying (1) May be repeated.

Music General (698)
500 Thesis (1-15) P/NP only.
501 Graduate Recital (2)
502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.
510 Music Bibliography (3) Bibliographic methodology in music.
511 Lecture Recital (2)
520 Musical Styles (3) Elements of design and their role in definition of musical styles. Prereq: Consent of instructor.
521 Special Topics in Performance (1-3) Prereq: Consent of school director.
540 Secondary Applied Music (1) May be taken by music majors desiring applied study on a 2nd or 3rd instrument. May be repeated for a maximum of 4 hours credit on each instrument. Admission by audition. Requires payment of Applied Music fee.

Music History (709)
410 Music History Genre (3) Topics vary. May be repeated. Maximum 6 hours.
420 History of Opera (3) Dramatic, vocal, and orchestral elements in opera of Italian, French, and German schools, 1600-present.
430 Symphonic Literature (3) Literature for orchestra from Baroque to present, evolution of symphony.
450 Composer Seminar (3) Life and works of single composer. Subjects vary.
460 Music Aesthetics (3) Nature of music and musical experience, sense perception and emotions, music, and role of artist in society. Aesthetic viewpoint of individuals and historical eras through selected writings.
480 Music in Christian Worship (3) Hymnody, liturgies, and liturgical music.
540 Music of the Medieval and Renaissance Periods (3) Survey of major musical phenomena from c. 900 to c. 1600. Chant, troubadour/trouvere song, Notre Dame polyphony, Ars Nova, Ars subtilior, madrigal, chanson, mass and motet. Musical developments considered against historical, cultural, analytical, and literary frameworks.
550 Music in the Baroque Period (3) From c.1600 to 1750; rise of opera and oratorio, sacred and secular cantatas, instrumental forms, performance practice.
560 Music in the Classic Period (3) Evolution of classical style from pre-classic music to music of Haydn, Mozart, and early Beethoven.
570 Music in the Romantic Period (3) Nineteenth-century musical styles from Beethoven to post-romanticists.
580 Music in the Twentieth Century (3) From 1890, Debussy, to present. Stockhausen and others.
585 Topics in Music of the Americas (3) Topics vary.
586 Topics in Opera (3) Topics vary within operatic repertory from the 17th c. to the present including music and drama; interdisciplinary, race, or gender studies; realism; nationalism; expressionism; minimalism. May be repeated. Maximum 6 hours.
590 Introduction to Ethnomusicology (3) Ethnomusicology as scholarly discipline. History, theories, and methodologies as applied to study of music in culture. Prereq: 380 or equivalent.
593 Independent Study (1-15) See College of Arts and Sciences. Prereq: Consent of school director.
595 Seminar in Ethnomusicology (3) Topics vary. Prereq: 590 and consent of instructor.
596 Seminar in Historical Musicology (3) Topics vary; specific musical genre, composer, or phenomenon. May be repeated. Maximum 6 hours.

Music Instrumental (710)
490 Instrumental Conducting (3) Development of knowledge and skills in instrumental conducting; study of various periods and composers and relationship of different styles to conductor's art; musical analysis and practice in conducting. Prereq: Music Education 320 or equivalent.
580 Band History and Literature I (3) Antiquity to 1900.
581 Band History and Literature II (3) 1900 to present.
583 Recitative for Instrumental Conductors (1) Problems in conducting recitatives. Prereq: Consent of instructor. Satisfactory/No Credit grading only.
584 Practicum for Instrumental Conductors (1) Intern experience in field other than area of major interest. Satisfactory/No Credit grading only.
590 Advanced Instrumental Conducting (2) Physical techniques of conducting, study and analysis of scores, rehearsal techniques. Attention to individual problems. Requires Applied Music fee. Prereq: Consent of instructor. May be repeated. Maximum 8 hours.
595 Instrumental Conducting Performance (1) Preparation and juryed performance of band or orchestral work(s). Prereq: Consent of instructor.

Music Jazz (711)
410 Advanced Improvisation (3) Further development of individual skills and solving individual problems in jazz improvisation. Prereq: 210 and 220.
420 Jazz Pedagogy (1) Methods and materials relating to teaching of jazz, designing and administering jazz programs, and rehearsal techniques for jazz ensembles. Prereq: Studio Music and Jazz major or consent of instructor.
520 Seminar in Jazz (3) Topic varies.

Music Keyboard (712)
420-430 Piano Literature I,II (3,3) 420--From 1750 to middle 19th century; 430--Middle 19th century to present.
460-470 The Organ and Its Literature I,II (3,3) Development of organ and organ literature from Middle Ages to present; problems of style and interpretation; organ literature and methods; organ design. Prereq or coreq: Music History 220 and consent of instructor.
480 Teaching Class Piano (3) Historical survey and evaluation of teaching materials and methodology for college and/or adult beginning piano classes, with collaborative teaching experience. Prereq: Consent of instructor.
485-495 Suzuki Piano Method I,II (2,2) Psychology, procedures, and literature of Suzuki piano method. Must be taken in sequence. Prereq: Consent of instructor.
490-491 Internship (2,2) Opportunity for pedagogy students to gain experience in teaching beginning students under supervision of experienced instructors. Weekly discussion seminars.
520 Piano Literature Seminar (3) Topics vary. May be repeated. Maximum 9 hours.
531-541 Recital Project (2,2) Preparation and accompaniment of full recital for accompanying concentrations only. 531--Vocal recital, 541--Instrumental recital. Prereq: Consent of instructor.
540 Advanced Piano Pedagogy (2) Topics vary. Evaluation and study of methods and materials for teaching piano at all levels. Supervised laboratory teaching. Prereq: Consent of instructor. May be repeated. Maximum 8 hours.
560 Organ Literature Seminar (3) Topics vary. May be repeated. Maximum 6 hours.
Music Performance (713)

All performance courses require an audition and consent of instructor. May be repeated. Maximum 8 hours toward Master of Music degree.

403 Flute (1-4)
405 Oboe (1-4)
410 Bassoon (1-4)
415 Clarinet (1-4)
420 Saxophone (1-4)
425 Horn (1-4)
430 Trumpet (1-4)
435 Trombone (1-4)
440 Baritone (1-4)
445 Tuba (1-4)
450 Percussion (1-4)
455 Voice (1-4)
460 Violin (1-4)
465 Viola (1-4)
470 Cello (1-4)
475 String Bass (1-4)
476 Electric Bass (1-4)
479 Guitar (1-4)
480 Piano (1-4)
485 Harpsichord (1-4)
490 Organ (1-4)
494 Composition (1-3)
495 Composition with Electronic Media (1-3)
499 Improvisation (1-2) May not be used toward applied music requirement.
503 Flute (1-4)
505 Oboe (1-4)
510 Bassoon (1-4)
515 Clarinet (1-4)
520 Saxophone (1-4)
525 Horn (1-4)
530 Trumpet (1-4)
535 Trombone (1-4)
540 Baritone (1-4)
545 Tuba (1-4)
550 Percussion (1-4)
551 Accompanying and Coaching (1-4)
555 Voice (1-4)
560 Violin (1-4)
565 Viola (1-4)
570 Cello (1-4)
575 String Bass (1-4)
576 Electric Bass (1-4)
579 Guitar (1-4)
580 Piano (1-4)
585 Harpsichord (1-4)
590 Organ (1-4)
594 Composition (1-3)
595 Composition with Electronic Media (1-3)
599 Improvisation (1-4)

Music Technology (717)

540 Computer Music Transcription (3) Projects in notation, playback, and publication of music incorporating elements of word processing, graphic design, sequencing, and page layout. Study of MIDI protocol as applied to computer music work station design. No credit toward MM concentration in Music Theory with technology emphasis. Prereq: Consent of instructor.

550 Computer Projects (3) High-level programming languages used to design and implement computer-managed instruction; Internet development tools; writing of documentation for computer projects. Prereq: 540 or equivalent.

560 Technology in Music Research (3) Use of technology for research projects in music analysis or pedagogy: development and execution of research project. Prereq: 550.

Music Theory (714)

430-440 Counterpoint I, II (3,3) 430—Study of species counterpoint in modal and tonal styles, works of Palestrina and J.S. Bach. Prereq: 210 with grade C or higher. 440—Study of contrapuntal forms of the 18th century and fugue analysis of works from the 10th through 20th centuries. Prereq: 430 with grade C or higher.

450 Choral Arranging (2) Analysis of scores and writing of arrangements for choruses. Prereq: 210 and 240 with grade C or higher, or consent of instructor.

520 Analytical Techniques (3) Analytical techniques, contemporary approaches. Tonal and neotonal music. Prereq: Consent of instructor.

530 Music Theory Pedagogy (3) Techniques, methods, and materials involved in college-level theory programs. Use of technology and review of existing software. Prereq: Consent of instructor.

593 Independent Study (1-15) See College of Arts and Sciences. Prereq: Consent of school director.

Music Voice (715)

410-420 Song Literature I,II (2,2) 410-German songs. 420-French, Italian, Russian, Scandinavian, Czechoslovakian, British, and American art songs. Graduate credit not available for students in vocal performance.

425 Functional Diction for Singers (3) Comprehensive survey of singing diction in six languages: English, French, German, Italian, Latin and Spanish. Basic instruction in International Phonetic Alphabet; development of basic diction skills; overview of diction styles and traditions in each language; survey of diction resources and reference materials. Does not fulfill deficiency requirements for graduate students in voice or accompanying.

510 Vocal Literature Seminar (3) Topics vary. May be repeated. Maximum 6 hours.

520 Performance Techniques for Singers (1) Improvisation, movement, and basic techniques for dramatic vocal performance. Prereq: Vocal major or consent of instructor. May be repeated for credit. Maximum 2 hours.

530 Opera Performance (2) Prereq: Consent of instructor. May be repeated. Maximum 4 hours.

540 Opera Production (1-3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

550-560 Advanced Vocal Pedagogy I,II (2,2) 550—Study of vocal production, examination of different methods. 560—Study of teaching materials, observation of studio teaching, analysis of vocal problems in selected students, and supervised teaching.

565 Special Projects in Vocal Pedagogy (3) Course is available only for graduate students majoring in vocal pedagogy. Prereq: Consent of instructor.

570 Vocal Chamber Music Performance (2) Prereq: Consent of instructor.

575 Internship in Vocal Pedagogy I (1) Opportunity for vocal pedagogy students to develop and improve applied teaching skills through a shared practicum experience in a seminar setting. Includes supervised instruction. Available only for graduate students majoring in vocal pedagogy. Prereq: Consent of instructor. May be repeated. Maximum 2 hours.

580-585 Choral Literature I,II (2,2) Choral music from middle ages to present with consideration of historical development of major choral genres.

590 Advanced Choral Conducting (2) Expansion and continued refinement of conducting technique. Score reading and preparation, rehearsal techniques, and interpretation of styles and performance practices. May be repeated. Maximum 8 hours.

594 Project in Choral Conducting Performance (1-3) Public performance, critical document; recording project. Prereq. Consent of instructor. May be repeated.

595 Choral Conducting Seminar (3) Topics vary. Prereq: 590 or consent of instructor. May be repeated.
DOCTOR OF PHILOSOPHY

Philosophy Major

REQUIREMENTS

Students must hold an MA with a major in philosophy or an equivalent degree when entering the PhD program. Thirty-three hours of coursework beyond the MA are required, of which six hours will be in courses numbered above 600. See the Philosophy Department Graduate Student Handbook for specific course requirements.

Students must demonstrate a reading knowledge of one foreign language, normally a living language in which there exists a significant body of philosophical literature. (In special circumstances relating to the area of dissertation research, the Graduate Committee may approve a language not satisfying these conditions.) This may be done by passing the doctoral language examination given by the appropriate department, if available, or by passing French 302 or German 332 with a B or better. Bi- or multilingual (normally, foreign) students, whose native language (other than English) is one in which there is a significant body of philosophical literature, are exempted from the foreign language requirement. Students receiving the PhD with concentration in medical ethics are also exempted.

GRADUATE COURSES

Philosophy (745)

400 Special Topics (3) May be repeated when topic varies. Maximum 6 hours.
411 Modern Religious Philosophies (3) (Same as Religious Studies 411.)
419 Science as Method (3) (Same as Botany 419; Ecology and Evolutionary Biology 419.)
420 Topics in History of Philosophy (3) Figures or movements from antiquity through mid-twentieth century. Prereq: 6hrs of philosophy or consent of instructor. May be repeated when topic varies. Maximum 9 hours.
435 Intermediate Formal Logic (3) Metatheory of formal logic and philosophy of logic. Prereq: Consent of instructor.
440 Contemporary Ethical Theory (3) Topics in meta-ethics or ethics. Prereq: 6hrs of philosophy or consent of instructor.
446 Theoretical Issues in Medical Ethics (3) Prereq: 240 or 345 or consent of instructor.
462 Philosophy of Biology (3) Current issues: nature of natural selection, adaptation, and fitness; level of selection debate; nature of species; interaction of environment and organism, and others. Prereq: Upper-division coursework in philosophy or biology or consent of instructor.
472 Philosophy of Language (3) Problems of meaning, reference and truth. Relation between words and world. How sentences manage to be about the world. What is true? Prereq: 3 philosophy courses 200 level or above.
473 Philosophy of Mind (3) Problems of mind and body in relation to consciousness and personal identity. Prereq: 6 hours of philosophy or consent of instructor.
479 Studies in Recent Continental Philosophy (3) Selected thinkers or topics: existentialism, phenomenology, hermeneutics, structuralism, post-structuralism. Prereq: 6 hours of philosophy or consent of instructor. May be repeated when topic varies. Maximum 6 hours.
500 Thesis (1-15) P/NP only.
502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.
510 Philosophical Research (3) Paper workshop (writing, revising papers, getting papers ready to publish). Does not count toward hours required for degree. May be repeated. Satisfactory/No Credit grading only.
520 Topics in Ancient or Medieval Philosophy (3) Intensive critical work on major philosopher or school. May be repeated. Maximum 9 hours.
524 Topics in Twentieth-Century Philosophy (3) Intensive critical work on major philosopher or school. May be repeated. Maximum 9 hours.

528 Topics in Contemporary Philosophy (3) Intensive critical work on themes in late 20th-century philosophy. May be repeated. Maximum 9 hours.

540 Topics in Ethics or Value Theory (3) May be repeated. Maximum 9 hours.

542 Topics in History of Ethics (3) Dominant movements in history of ethics. May be repeated. Maximum 9 hours.

544 Topics in Applied Ethics (3) Single author, tradition, or topic in ethical theory, application to issues in health, business, technology, ecology, and other practical fields. May be repeated. Maximum 9 hours.

546 Orientation to Medical Ethics (3) Survey of ethical theories in application to issues in medical ethics.

547 Ethical Issues in Mental Health (3) Values in mental health and mental illness, informed consent in psychiatry, competence, patients’ rights, involuntary hospitalization and treatment, and behavior control therapies.

548 MA Clinical Practicum (3) Series of clinical rotations at one or more local health care institutions. Open only to graduate students concentrating in medical ethics. Prereq: 547 and consent of Medical Ethics Committee and the UTMCK Graduate Education Committee.

575 Topics in Metaphysics and Epistemology (3) May be repeated. Maximum 9 hours.

577 Topics in Philosophy of Mind (3) Relation of mental to physical and of role of words in discourse for mental activities, thinking and feeling. May be repeated. Maximum 9 hours.

585 Special Topics (3) May be repeated. Maximum 9 hours.

587 Advanced Clinical Medical Ethics (3) Critical concepts in medical ethics, relationship of theory to practice, and professional roles and responsibilities for health care ethics consultant. Open only to PhD students concentrating in medical ethics. Prereq: Consent of Medical Ethics Committee.

588 PhD Clinical Practicum (9) Series of clinical rotations at one or more local health care institutions. Open only to PhD students concentrating in medical ethics. Prereq: 587 and consent of Medical Ethics Committee and the UTMCK Graduate Education Committee.

590 Topics in Social and Political Philosophy (3) Philosophical problems concerning social and political life: family, state, freedom, justice; major theoretical responses: anarchism, social contract, Marxism. May be repeated. Maximum 9 hours.

591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences. Satisfactory/No Credit or letter grade.

600 Doctoral Research and Dissertation (3-15) P/NP only.

620 Topics in Ancient or Medieval Philosophy (3) May be repeated. Maximum 9 hours.

622 Topics in Modern Philosophy (3) May be repeated. Maximum 9 hours.

624 Topics in Contemporary Philosophy (3) May be repeated. Maximum 9 hours.

640 Topics in Ethics or Value Theory (3) May be repeated. Maximum 9 hours.

646 Topics in Applied Ethics (3) Prereq: Consent of Medical Ethics Committee. May be repeated. Maximum 9 hours.

**Department of PHYSICS AND ASTRONOMY**

http://www.phys.utk.edu/

Soren P. Sorensen, Head
Chia C. Shih, Graduate Liaison
Marianne Breinig, Director of Graduate Program

**Professors**

Barnes, F.E. (Collaborating Scientist), PhD ............................................. California
Bingham, C.R., PhD ................................................................. Tennessee
Blass, W.E., PhD ........................................................................... Michigan State
Breine, M.J., PhD ........................................................................ Oregon
Callcott, T.A., PhD ................................................................. Purdue
Childers, R.W., PhD ..................................................................... Vanderbilt
Crater, H.W. (UTSI), PhD ............................................................ Yale

Duckett, K.E., PhD ........................................................................ Tennessee
Egalulz, A.G., PhD .......................................................................... Brown
Elston, S.B., PhD ........................................................................... Massachusetts
Georgiou, S., PhD ............................................................................ Manchester (UK)
Greene, G.L., PhD .......................................................................... Harvard
Guiry, M.W., PhD ........................................................................... Tennessee
Handler, T., PhD ........................................................................... Rutgers
Kamynychkov, I., PhD ................................................................. ITEP (Russia)
Levin, J.C., PhD .............................................................................. Oregon
Lewis, J.W.L. (Distinguished Professor, UTSI), PhD ................................. Mississippi
Macek, J. (Distinguished Scientist), PhD ................................................... California Institute of Technology

**Associate Professors**

Daig, P., PhD ................................................................. Missouri
Davis, L. (UTSI), PhD ..................................................................... Auckland
Pai, D., C. (UTSI), PhD .................................................................... New Zealand
Read, K.F. (Collaborating Scientist), PhD ............................................... Cornell
Siopsis, G., PhD ........................................................................... California Institute of Technology

**Research Professors**

Dzvinichikov, S., PhD ................................................................. Leningrad
Pinnanwage, L.A., PhD ................................................................. Pittsburgh
Strayer, M.R., PhD ................................................................. Massachusetts Institute of Technology
Thundat, T., PhD ...................................................................... State University of New York (Albany)
Zhang, J., PhD .............................................................................. Lanzhou

**Research Associate Professor**

Datskos, P.E., PhD ........................................................................... Tennessee
Ferrell, T.L., PhD ........................................................................... Clemson
McCorlde, D., PhD ......................................................................... Tennessee
Varga, K., PhD .............................................................................. Kossuth Lagos

**Research Assistant Professors**

Atay, T., PhD ................................................................................. Kansas
Boaidjiev, V.I., PhD ....................................................................... Wisconsin-Milwaukee
Hir, J.W., PhD .............................................................................. Harvard
Sanders, A.J., PhD ......................................................................... Tufts

**Director of Undergraduate Laboratories**

Parks, J.E., PhD .............................................................................. Kentucky

**Lecturer**

Daunt, S.J., PhD ........................................................................... Queens (Kingston, Ontario, Canada)

**MAJOR DEGREES**

Physics ......................................................................................... MS, PhD

Graduate programs leading to the Master of Science and Doctor of Philosophy are offered in a number of concentration areas: astrophysics; atomic, molecular, optical and low temperature physics; biophysics; chemical physics; condensed matter and surface physics; elementary particle physics; geophysics (master’s only); health physics (master’s only); mathematical and computational physics; nuclear and relativistic heavy ion physics; and theoretical physics.

Departmental graduate programs leading to the MS and PhD are also available at the University of Tennessee Space Institute, Tullahoma, where opportunities for study and research
are available in laser applications, quantum and applied optics, laser spectroscopy, fluid physics, medical physics, computational physics, and theoretical physics. For additional information, contact the department head.

ADMISSION

A student who enrolls in graduate study with the intention of attaining an advanced degree in Physics will have completed an undergraduate major in physics or its equivalent. Physics 311-312, 321, 361, 431-432, 421, 461, and 411-412 constitute the minimum courses prerequisite to graduate study.

A student who intends to present physics as a graduate minor will have completed an undergraduate minor in physics or its equivalent. Physics 311 and 431-432 constitute the minimum coursework prerequisite to a minor in physics.

In addition to meeting the Graduate Council’s minimum requirements, applicants are strongly encouraged to submit scores from the Graduate Record Examination (general and subject).

All first-year graduate students are required, for advising purposes only, to take a diagnostic examination in undergraduate physics during the fall semester registration period.

MASTER OF SCIENCE

Physics Major

REQUIREMENTS

Thesis Option

The course requirements include 24 semester hours of physics courses, of which at least 12 hours are taken from Physics 511-512 or 513-514, 521-522, 531-532, 541-542, 571-572, 573. Each candidate must present an acceptable thesis, 6 hours of 500, and pass an oral examination on course material and thesis.

Geophysics concentration: The department offers an MS thesis program with a concentration in geophysics. Program requirements are: 12 hours from Physics 513-514, 521-522, 531-532, 541-542, 571-572, 573; a minimum of 12 additional hours in geology, geophysics, and/or physics, as approved by the student’s committee; and the presentation of an acceptable thesis.

6 hours of Physics 500, and the passing of an oral examination on course material and thesis.

Project Option

The course requirements include a minimum of 30 semester hours of graduate credit in courses composed of Physics 506, 511-512; 6 hours from Physics 593, 594 for a Project in Lieu of Thesis; 9 hours from general physics: 411-412, 421, 431-432, 461-462, 507, 508, 521-522, 531-532, 541-542, 555, 571-572, 573 (at least 3 hours above the 500 level); and 6 hours from a single minor field outside of the physics department, such as computer science, mathematics, engineering, chemistry, biology, education, business, or law.

The candidate must pass an oral examination on course material and on the project representing the culmination of an original research project completed by the student. A written report must be approved and accepted by the Physics Graduate Committee and the department head. An electronic version of the written report must also be submitted to the permanent electronic archive of the Physics Department available to the Internet.

Non-Thesis Option

Students seeking the non-thesis option must apply to the department’s graduate committee for permission to enroll under this program. The requirements are the satisfactory completion of 30 semester hours of coursework composed of 18 hours from Physics 511-512 or 513-514, 521-522, 531-532, 541-542, 571-572, 573; 6 hours in a minor field; and 6 hours from other courses numbered above 400 (preferably of advanced laboratory nature.) At least 20 hours must be taken at the 500-level or above. In addition, the candidate must pass a written examination administered by his/her committee.

DOCTOR OF PHILOSOPHY

Physics Major

REQUIREMENTS

All students are expected to take the graduate core curriculum in physics consisting of the following courses: Physics 521-522, 531, 541, 551, and 571. Students concentrating in chemical physics may substitute Chemistry 572 for Physics 551, and should complete at least 6 semester hours from Chemistry 570, 571, 670. Students must take a minimum of 15 hours of 600-level courses, with 6 of these hours in their concentration area. Physics 601-602 are normally required of students concentrating in atomic physics; Physics 621-622 of students in nuclear physics; Physics 626-627 of students in elementary particle physics (and/or Physics 611-612 for students concentrating in theoretical elementary particle physics); Physics 615-616 of students in astrophysics and cosmology; and Physics 671-672 of students in condensed matter and surface physics.

To be admitted to PhD candidacy students must: (a) fulfill all general requirements by the Graduate Council, (b) pass the qualifying examination, (c) have at least a 3.0 GPA on the graduate core curriculum in physics, (d) form a doctoral committee, and (e) pass the comprehensive examination.

The qualifying examination is designed to test the student’s general knowledge of the fundamentals of physics. The performance needed to pass this examination corresponds to a mature command of the material typically included in the undergraduate physics major curriculum. The qualifying examination should be passed after the student’s first year of study. Based on the student’s performance on: (a) the qualifying examinations, (b) the coursework, (c) the GRE scores, and (d) optional research participation, the faculty will decide if the student will be allowed to continue in the PhD program.

Students are required to find a research advisor and form a doctoral committee before the end of the second year of study. This committee is responsible for advising the student and monitoring his/her progress toward the doctoral degree.

The comprehensive examination is designed to test the student on: (a) specific knowledge and skills in the areas essential to the student’s research program, (b) capability to successfully complete the doctoral dissertation, and (c) general knowledge of the graduate core curriculum. The most essential component of this examination is the presentation and defense of an original research proposal. The comprehensive examination must be passed before the end of the third year of study. It contains both a written and an oral component and is conducted by the student’s doctoral committee and an additional faculty member appointed by the department head.

The dissertation topic will be chosen with reference to one of the fields in which research facilities can be made available either at the University of Tennessee laboratories in Knoxville; the
University of Tennessee Space Institute at Tullahoma, Tennessee; the Oak Ridge National Laboratory, Oak Ridge, Tennessee; or at other research facilities used by the university faculty.

**GRADUATE COURSES**

**Astronomy (150)**

411 Astrophysics (3) Development of analytical physical models of galactic structure of universe, stellar and interstellar matter, and planetary systems. Topical and interdisciplinary, consideration of quasars, pulsars, black holes and current developments in field. Acceptable for major credit in physics. Prereq: Physics 136 or 138 or 222 or 232, and consent of instructor.

490 Special Topics in Astronomy (1-3) Topics of current interest in astronomy and astrophysics. Acceptable for graduate credit in physics with consent of department. May be repeated with consent of department. Maximum 9 hours.

**Physics (773)**

411-412 Introduction to Quantum Mechanics (3,3) Fundamental principles of quantum mechanics and methods of calculation. Solution of Schrödinger equation for simple systems. Application to atomic, molecular, nuclear, and condensed matter physics. Must be taken in sequence. Prereq: 240 or equivalent, Mathematics 435.

421 Modern Optics (4) Transmission of light in uniform, isotropic media; reflection and transmission at interfaces; mathematics of wave motion and interference effects. Rudiments of Fourier optics and holography. 3 hours and 3 labs. Prereq: 431 or 136 or 138 or 232., and consent of instructor.

431-432 Electricity and Magnetism (3,3) Electrostatics, magnetostatics, coupled electric and magnetic fields, Maxwell's Equations, electromagnetic waves and radiation. Prereq: 136 or 138 or 232.

461-462 Modern Physics Laboratory (3,3) 461 - Introduction to fundamental and modern techniques in experimental physics, and to theory and practice of measurement and data analysis. Selected experiments in nuclear, atomic, molecular and solid state physics, and modern optics. Prereq: 240 or 411.

462 - Advanced experiments and experimental techniques in modern physics, experimental team work. Thorough quantum mechanical interpretation of results and preparation of scientific reports. 6 hours lab per week. Prereq: 461.

490 Senior Seminar (1-3) Topic of current interest. May be repeated with consent of department. Maximum 6 hours.

500 Thesis (1-15) P/NP only.

501 Graduate Research Participation (3) Advanced research techniques under supervision of staff research director whose research area coincides with interests of student. Open to all graduate students in good standing. Prereq: Consent of department and research director. May be repeated with consent of department. Maximum 18 hours. Satisfactory/No Credit grading only.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

503 Physics Colloquium (1) Lectures and discussion on current research topics. Continuous registration required for current graduate students. May be repeated. Maximum 6 hours. Satisfactory/No Credit grading only.

505 Physics of Fluids (3) Fluid physics, overview of fluid mechanics and associated computational techniques; general description of laminar and turbulent flows; subsonic, supersonic and hypersonic flows; continuum, transitional and free-molecular flows; pipe flow, nozzle flow and sonic orifice expansion flows; reacting and nonreacting flowfields; shock-tube physics; and introduction to method of characteristics and Monte Carlo computational techniques.

506 Experimental Methods (3) Introduction to experimental methods of spectroscopy through hands-on operation of FTIR, Raman, NMR, photoelectron, laser and mass spectrometers. Principles and hazards of cw and pulsed lasers, radiation detectors, photomultiplier tubes, image intensifiers, image converters; high-vacuum systems including cryogenic-based devices, data acquisition techniques including lock-in amplifiers, box-car integrators, digital electronics methods, and microcomputer data acquisition.

507 Contemporary Optics (3) Topics in geometrical, physical, Fourier, and nonlinear optics and introductory laser physics. Extensive use of computer calculations and design of practical and sophisticated optical systems.

508 Laser Physics (3) Mode analysis, stable and unstable resonators; rate equations and population inversion, saturation, relaxation oscillations, fluctuations and noise, laser stability; quantum theory of laser, photon coherence; mode-locking, Q-switching and frequency stabilization; specific laser types, semiconductor and solid-state, excimer, copper vapor and dye lasers.

511-512 Theoretical Physics (3,3) Concepts and applications in applied physics. Topics: one-body, two-body and rigid body dynamics, ideal fluid, small oscillations and waves, elements of special relativity, electrostatic and magneto-static problems, EM waves, duality and quantization, absorption and emission, statistical ensemble and thermal equilibrium, and other modern applications of current interest, in areas of quantum chemistry, biophysics, optics, spectroscopy, and astrophysics. Recommended background: Familiarity with computational methods.

513 Problems in Theoretical Physics I (3) Fundamentals of physics: classical mechanics (Newtonian mechanics, Lagrangian and Hamiltonian dynamics) and electrostatics and magnetostatics.

514 Problems in Theoretical Physics II (3) Fundamentals of physics: electrodynamics, relativity, and quantum mechanics.

521-522 Quantum Mechanics (3,3) Fundamental principles of quantum mechanics, angular momentum, electron spin, particles in electric and magnetic fields, perturbation theory, variational theory, second quantization, quantization of electromagnetic field, emission, absorption, and scattering of light, bremsstrahlung, pair creation and annihilation. Application of quantum mechanics to problems of atomic, molecular, nuclear, and solid state physics. Prereq for 522: 521

531 Classical Mechanics (3) Variational formulation, Lagrange's and Hamilton's equations, constraints, canonical transformations, Hamilton-Jacobi theory and action-angle variables.

532 Advanced Classical Mechanics (3) Advanced topics in classical mechanics, KAM theorem and Hamiltonian chaos, dissipative chaos. Topics may vary according to interest of students and instructor. Prereq: 531.

541-542 Electromagnetic Theory (3,3) 541—Review of electrostatics, magnetostatics, and quasi-static problems; Maxwell's field equations and their solutions in dielectric and conducting media; electrodynamics and relativity, unbounded potentials, and gauge transformations, radiation produced by accelerating charges. 542—Advanced treatment of Electrodynamics, collisions between charged particles, bremsstrahlung, multipole fields. Topics may vary according to interest of students and instructor. Prereq or coreq for 541: 571. Prereq for 542: 541.


561 The Theory of Relativity (3) Geometry of space-time, relativistic electrodynamics, particle mechanics and continuum mechanics, Einstein's field equations, Schwarzschild solutions, the classical test of general relativity. Prereq or coreq: 531 and 542.


591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences.

594 Special Problems (3) Especially assigned theoretical or experimental work on problems not covered in other courses. May be repeated. Maximum 9 hours.


600 Doctoral Research and Dissertation (3-15) P/NP only.

601-602 Atomic Physics (3,3) 601 — Survey of research problems and methods. Topics of current interest. Intended for all graduate students. 602 — Advanced problems for students specializing in field.

605 Laser Spectroscopy (3) Applications of lasers to spectroscopy of atomic and molecular systems; absorption, laser-induced fluorescence, and Raman spectroscopy; molecular and atomic coherence, quantum beats, resonance fluorescence, photon echoes, self-induced transparency; saturation and Doppler-free spectroscopy; laser cooling and trapping. Prereq: 521, 541.
606 Nonlinear Optics (3) Nonlinear optical susceptibilities, wave propagation in nonlinear media, sum-frequency and difference frequency generation, harmonic generation, parametric amplification and oscillation, stimulated Raman processes, two- and multi-photon processes, four-wave mixing and phase conjugation, transient coherent optical effects and free induction decay, optical breakdown and nonlinear effects in plasmas. Prereq: 522.

610 Quantum Optics (3) Quantum theory of emission and absorption of radiation: frequency-dependent susceptibility; coherence theory; field quantization and coherent photon states; interaction of radiation with atoms; photon optics, counting and higher-order coherence; atomic scattering phenomena.

611 Advanced Quantum Mechanics and Field Theory (3) Survey of problems and methods. Topics of current interest. Intended for all graduate students.

612 Advanced Topics in Quantum Field Theory (3) Renormalization, Lamb shift, anomalous magnetic moments, gauge theories, electroweak theory, quantum chromodynamics, grand unified theories, and advanced topics in laser physics and quantum optics. Topics vary according to interest of students, instructor and present state of physics. Prereq: 611 or consent of instructor.

615-616 Astrophysics and Cosmology (3,3) 615 - Stellar evolution: hydrostatic equilibrium, energy production and transport, star birth, main sequence, red giants, variable stars, and stellar explosions. General relativity and gravitation, white dwarfs, neutron stars, pulsars, and black holes. 616 - Galaxies and the interstellar medium. Active galaxies, quasars, and supermassive black holes. Large-scale structure, the expanding Universe, cosmologies, big bang, cosmic background radiation, inflation, dark matter, formation of structure, and fate of the Universe. The Planck scale and quantum gravity.

621-622 Nuclear Physics (3,3) 621 - Survey of research problems and methods. Topics of current interest. Intended for all graduate students. 622 - Advanced problems intended for students specializing in the field.

626-627 Elementary Particle Physics (3,3) 626 - Survey of elementary particle physics: experimental methods, conservation laws, invariance principles, and models of interactions. Intended for all graduate students. 627 - Advanced topics intended for students specializing in field: quark models, electroweak interactions and unification of elementary forces.

642 Advanced Topics in Modern Physics (3) Advanced theoretical or experimental topics not covered in other courses. May be repeated with consent of department. Maximum 9 hours.

643 Computational Physics (3) Developing computer algorithms for solving representative problems in various fields of physics, celestial dynamics in astrophysics, boundary value problems in electromagnetism, atomic and nuclear structures, band structure in solid state physics, transport problems in statistical mechanics, Monte Carlo simulation of liquids, fitting and interpolation of data, correlation analysis, or optimization strategy. Prereq: 521, 531, 571.

671-672 Advanced Solid State Physics (3,3) 671 - Survey of research problems and methods. Topics of current interest. Intended for all graduate students. 672 - Advanced problems intended for students specializing in field.

**Department of POLITICAL SCIENCE**

**http://web.utk.edu/~polisci/**

David L. Feldman, Head
Yang Zhong, Graduate Coordinator

**Professors**

Cunningham, R.B., PhD .................................................. Indiana
Feldman, D.L., PhD ......................................................... Missouri
Fitzgerald, M.R., PhD ..................................................... Oklahoma
Freeland, P.K., PhD ..................................................... Wisconsin (Milwaukee)
Gant, M.M., PhD ......................................................... Michigan State
Gorman, R., PhD .......................................................... New York
Lyons, W., PhD ............................................................. Oklahoma
Schep, J.M., PhD .......................................................... Florida
Stephens, Jr., O.H. (Alumni Distinguished Service Professor),
PhD .................................................. Johns Hopkins
Zhong, Y., PhD ............................................................. Kentucky

**Associate Professors**

Folz, D.H., PhD .......................................................... Tennessee
Houston, D.J., PhD ..................................................... State University of New York (Binghamton)
Nowles, A.J., PhD ........................................................ Kansas

**Assistant Professors**

Capiroli, M., PhD ........................................................ Connecticut
Carcieri, M., PhD ........................................................ California (Santa Barbara)
Lipinski, D., PhD ........................................................ Duke
Morgan, A., PhD ........................................................ Georgetown
Van Cott, D., PhD ........................................................ Georgetown

MAJORS DEGREES

Political Science ................................................................. MA, PhD
Public Administration ..................................................... MPA, JD-MPA

The Department of Political Science offers the MA, MPA, and PhD. The department also offers a dual program with the College of Law. Inquiries concerning all programs should be directed to the departmental office.

**ADMISSION**

Three departmental recommendation forms must be submitted to the Office of Graduate Admissions, at least two of which must be completed by instructors at the institution most recently attended. In addition, scores on the general portion of the Graduate Record Examination must be submitted.

**MASTER OF ARTS**

**Political Science Major**

**ADMISSION**

A bachelor’s degree or its equivalent is required for admission. Normally an average of 3.0 is also required together with an average of 3.2 in the last two years of political science or social science. In addition, a composite score of at least 1100 on the verbal and quantitative parts of the GRE is normally required.

**REQUIREMENTS**

**Thesis Option (30 hours)**

Coursework, preparation of a thesis, and an oral examination on coursework and the thesis, is required. At least 12 of these hours must be in political science, with 6 in the field of methodology (Political Science 510 and either 511 or 512). Six hours may be earned through thesis credit.

**Non-Thesis Option (36 hours)**

Coursework, plus a written comprehensive examination on all coursework is required. At least 12 of these hours must be in political science, with 6 in the field of methodology (Political Science 510 and either 511 or 512), and 3 hours in the 600-level research seminar in the student’s first field of interest.

**MASTER OF PUBLIC ADMINISTRATION**

**Public Administration Major**

The MPA program is intended to prepare students for public service careers by acquainting them with management principles, analytical tools, and the ethical dilemmas they will face as public administrators. It consists of a total of 39 semester hours, including a core program, an elective specialization and a recommended internship.

**ADMISSION**

Applicants for admission to the program must have a bachelor’s degree or its equivalent. Normally, an overall average of 3.0 and an average of 3.2 in the last two years of political science or social science courses is required. In addition, a composite score of 1100 on the verbal and quantitative parts of the GRE is desired.
Students must demonstrate proficiency in the use of software applications for the personal computer. This requirement can be fulfilled by achieving a satisfactory grade in Political Science 596, Workshops in Computer Applications. Exceptions to this requirement will be considered on an individual basis.

REQUIREMENTS
The MPA is a non-thesis program requiring 39 hours. Specific requirements include the following:

- **Core Curriculum (24 hours):**
  - General Perspectives (9 hours): 550 Public Administration; 552 Organizational Theory; and any one of the following: 442 Administrative Law; 539 State and Local Government; 540 Public Law; 548 Public Policy Process; 558 Politics of Administration; or 566 Ethics, Values, and Morality in Public Administration.
  - Analytical skills (6 hours): 512 Quantitative Political Analysis; 514 Research and Methodology in Public Administration.
  - Management skills (9 hours): 560 Public Budgeting and Finance; and any two of the following: 562 Public Management; 564 Human Resources Management; 556 Policy Analysis.
- **Specialization (9 hours):** A specialization is designed by the student in consultation with the coordinator of the MPA program. Possible specializations include general government, public health, budgeting and finance, planning, natural resources, program evaluation, criminal justice, public relations, personnel, and others.
- **Recommended Internship (6 hours):** Internships are arranged in consultation with the coordinator of the MPA degree program.
- **Final Examination.** A written final examination, which may be followed by an oral examination, is required.

Dual JD-MPA
The College of Law and the Department of Political Science in the College of Arts and Sciences offer a coordinated dual degree program leading to the conferral of both the Doctor of Jurisprudence and Master of Public Administration degrees. In this program, a student may earn the MPA and JD degrees in about four years rather than the five years that otherwise would be required. Students pursuing the dual degree program should plan to be enrolled in coursework or an internship for one summer term in addition to taking normal course loads for four academic years.

ADMISSION
Applicants for the JD-MPA program must make separate application to, and be independently accepted by, the College of Law for the JD degree and the Department of Political Science and the Office of Graduate Admissions for the MPA degree. Applicants must also be accepted by the Dual Degree Committee. All applicants must submit a Law School Admission Test (LSAT) score. An applicant’s LSAT score may be substituted for the Graduate Record Examination (GRE) score, which is normally required for admission to the MPA program. Application may be made prior to or after matriculation in either the JD or the MPA program, but application to the dual program must be made prior to entry into the last 29 semester hours required for the JD degree and prior to entry into the last 15 hours required for the MPA degree.

REQUIREMENTS
A dual degree candidate must satisfy the requirements for both the JD and the MPA degrees, as well as the requirements for the dual program. The College of Law will award a maximum of 9 semester hours of credit toward the JD degree for successful completion of approved graduate level courses (500 or 600 level) offered in the Department of Political Science. The MPA program will award a maximum of 9 semester hours of credit toward the MPA degree for successful completion of approved courses offered in the College of Law. All courses for which such cross-credit is awarded must be approved by the JD-MPA coordinators in the College of Law and the Department of Political Science. All candidates for the dual degree must successfully complete Administrative Law (Law 821). An internship is strongly recommended for students in the dual degree program, as it is for all MPA candidates, but an internship is not required.

During the first two years in the dual program, students will spend one academic year completing the required first year of the College of Law curriculum and one academic year taking courses solely in the MPA program. During those first two years, students may not take courses in the opposite area, without the approval of the JD-MPA coordinators in both academic units. In the third and fourth years, students are strongly encouraged to take both law and political science courses each semester.

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

Awarding of Grades
For grade recording purposes in the College of Law and the Department of Political Science, grades awarded in courses in the other unit will be converted to either Satisfactory or No Credit and will not be computed in determining a student’s GPA or class standing. The College of Law will award a grade of Satisfactory for an approved MPA course in which the student earns a grade of B or higher and a grade of No Credit for any lower grade. The Political Science Department will award a grade of Satisfactory for an approved law course in which the student earns a grade of 2.3 or higher and a grade of No Credit for any lower grade. The official academic record of the student maintained by the Registrar of the university shall show the actual grade assigned by the instructor without conversion.

DOCTOR OF PHILOSOPHY
Political Science Major
The PhD program prepares students for careers in college teaching, as well as careers in other occupations related to service in the public or private sectors.

ADMISSION
Applicants for admission to the program should normally have completed a master’s degree in political science or a related field with a 3.5 GPA and have earned a composite score of at least 1100 on the verbal and quantitative parts of the Graduate Record Examination.
## REQUIREMENTS

Doctoral students admitted to the program must complete 84 hours beyond the bachelor’s degree, including 24 hours of coursework beyond the master’s degree, graded A-F, must successfully pass written comprehensive examinations in two broad sub fields of political science, and must pass a final oral examination on the dissertation.

In addition, students must satisfy a research tool requirement. Usually, students meet this requirement by completing 12 hours of coursework numbered above 500 in empirical methodology and research methodology. However, if a student’s advisor and program committee certify that competency in a foreign language is a more appropriate research tool, a foreign language can be used instead.

In addition to the total hours required for the degree, the following requirements must also be met:

- At least 69 hours must be in political science courses.
- At least 54 hours in political science must be in courses numbered above 500.
- Completion of Political Science 510, 511, and 512.
- Completion of at least three courses or seminars at the University of Tennessee, Knoxville, in each of the two broad subfields in which the students take examinations.
- Completion of at least one course or seminar in each of the five broad subfields available for graduate instruction in the department.
- At least 6 hours must be earned in political science courses numbered above 600.
- A total of 24 hours must be earned by writing the dissertation.

## Environmental Policy Minor

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

## GRADUATE COURSES

### Political Science (801)

- **425 Media and Politics (3)** Examines the interrelationship between the political system and the media from a political science perspective.
- **430 United States Constitutional Law: Sources of Power and Restraint (3)** Analysis of judicial review, constitutional powers of President and Congress, federalism, sources of regulatory authority, and constitutional protection of political and economic rights. (Same as Legal Studies 430.)
- **431 U.S. Constitutional Law: Civil Rights and Liberties (3)** Analysis of current issues in civil rights and liberties including: first amendment freedoms, equal protection, privacy and rights of accused. (Same as Legal Studies 431.)
- **435 Criminal Law and Procedure (3)** Substantive and procedural law in criminal justice field; constitutional questions and public policy issues. (Same as Legal Studies 435.)
- **441 Public Budgeting (3)** Process, participants, and politics of government budgeting: federal government budgeting; Overview of budget reform measures and their effectiveness.
- **442 Administrative Law (3)** Legal dimensions of administrative power and procedures, and constitutional controls over administrators. (Same as Legal Studies 442.)
- **445 Administration of Justice (3)** Administration and processes of justice system, including judicial administration and decision making in trial and appellate courts. (Same as Legal Studies 445.)
- **451 Ethnic Conflict in Foreign Countries (3)** Examination of political and violent conflict among ethnic and national groups and challenges these conflicts pose for democratic and democratizing states.
- **452 Black African Politics (3)** Recent evolution and current political environment of Black African nations. (Same as African and African-American Studies 452.)
- **454 Government and Politics of China and Japan (3)** Examination of the political setting, structure and political processes in China and Japan.
- **456 Latin American Government and Politics (3)** Political development of Latin America: contemporary politics. (Same as Latin American Studies 456.)
- **459 Government and Politics of Russia and Eastern Europe (3)** System transformation, political processes and governmental structure in Russia and Eastern European countries.
- **461 Policy Making in Democracies (3)** Comparative approach to theory and process of making public policies.
- **463 Contemporary Middle East Politics (3)** Governments and movements in Middle East, their characteristics, bases, and interrelationships.
- **471 International Political Economy (3)** The politics of international economics. Topics include globalization, development, trade, crime, the IMF, the WTO, the environment and challenges to the status quo.
- **473 Negotiation, Bargaining and Diplomacy (3)** Diplomacy, negotiation, and foreign policy decision-making. Theories of diplomacy and negotiation are applied in a simulation focusing on issues from international crime and global economic stability to world health and the environment.
- **474 International Organization (3)** Constitutional framework and key functions of the United Nations. Topics include collective security, peacekeeping, human rights, development, regional organizations, and the role of the Secretary-General.
- **475 Ancient and Medieval Political Thought (3)** Survey of major western political thinkers from Socrates to Marsilio of Padua.
- **476 Modern Political Thought (3)** Survey of major western political thinker from Machiavelli to Marx.
- **500 Thesis (1-15)** P/NP only.
- **502 Registration for Use of Facilities (1-15)** Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.
- **510 Scope and Methods in Political Science (3)** Procedures of analysis in political science.
- **511 Research Design (3)** Methods for planning and executing research, from case studies to experimental designs: development of research questions and hypotheses; measurement issues; and validity of inferences.
- **512 Quantitative Political Analysis (3)** Methods and techniques in quantitative political analysis: univariate and bivariate statistics.
- **513 Quantitative Political Analysis (3)** Methods and techniques in quantitative political analysis: multivariate model building.
- **514 Research and Methodology in Public Administration (3)** Basic assumptions and techniques of research in public administration; measurement, analysis, and reporting of data.
- **520 Political Theory (3)** Survey of major ideas, thinkers and works of Western political theory.
- **522 American Political Thought (3)** Systematic examination of the normative and empirical theories of leading American political thinkers from the colonial period to the present.
- **530 American Government and Politics (3)** Survey of literature, approaches to research and analysis, critical examination of major works, and overviews of research in various sub fields. May be repeated with consent of department. Maximum 9 hours.
- **532 Presidency (3)** Systematic examination of the structure, functions and powers of the American presidency as they have evolved from the founding to the present.
- **533 Congress (3)** Formal, empirical and theoretical approaches to and models of the institutional workings of Congress and the behavior of legislators.
- **535 Mass Political Behavior (3)** Theoretical and empirical analyses of public opinion, political socialization, political attitudes and behavior, especially voting behavior.
- **537 Political Parties and Interest Groups (3)** Theoretical and empirical examination of the structure, functions and operations of political parties and interest groups.
539 State and Local Government and Politics (3) Theoretical and empirical analysis of government, politics, policymaking and public administration at the state and local levels.

540 Public Law (3) Selective examination of published research and current approaches in sub fields of constitutional law, judicial process, and judicial behavior. May be repeated with consent of department. Maximum 9 hours.

548 Public Policy Process (3) Theoretical, formal and empirical analysis of the roles, functions and decision making processes of public policymakers, including legislative, executive and judicial actors.

549 Environmental Policy (3) Overview of contemporary environmental policy and its evolution. Examines the roles of values in the environmental arena. Provides a framework for policy analysis and analytical tools for selection and choosing among policy options.

550 Public Administration (3) Overview of public administration theory and function.

552 Organization Theory (3) Appraisal of major theories of organization and their applicability to public sector.

556 Policy Analysis (3) Strategies and techniques for identification and analysis of public problems and policy solutions. May be repeated with consent of department. Maximum 9 hours.

558 The Politics of Administration (3) Examination of public administration in context of American political system, policy making and political roles of public administrators and agencies. May be repeated with consent of department. Maximum 9 hours.

560 Public Financial Administration (3) Principles and techniques of public finance at state and local levels: budget preparation, execution and audit, risk management, capital planning, major tax structures, economic forecasting, cash management, and debt administration.

562 Public Management (3) Interpersonal and leadership skills, techniques and methods for planning, decision making, and implementation of management strategies in public sector. May be repeated with consent of department. Maximum 9 hours.


566 Ethics, Values, and Morality in Public Administration (3) Moral-ethical-value dilemmas confronting administrators in American political system.

569 Internship in Public Administration (3-9) Open to students participating in approved internship programs. May be repeated with consent of department. Maximum 9 hours. Satisfactory/No Credit grading only.

570 Comparative Government and Politics (3) Selected topics in modern governments. May be repeated with consent of department. Maximum 9 hours.

572 The Politics of Development (3) Selected topics dealing with political problems of less developed countries. May be repeated with consent of department. Maximum 9 hours.

574 Area Seminar in Comparative Government and Politics (3) Selected topics in area studies: African, Asia, Latin America, Middle East, Soviet Union and Eastern Europe or Western Europe. May be repeated with consent of department. Maximum 9 hours.

580 International Politics (3) Survey of literature and major aspects of international politics. May be repeated with consent of department. Maximum 9 hours.

591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences.

594 College Teaching in Political Science (1) Instructional effectiveness, techniques, organization, materials for teaching political science at college level. Prereq: Consent of instructor. Satisfactory/No Credit grading only.

595 Readings and Special Problems in Political Science (1-3) Prereq: Consent of instructor. May be repeated. Maximum 15 hours.

596 Workshops in Computer Applications (1) Training in software applications to support research and decision making tasks in public service. Successful completion certifies proficiency of MPA students in use of software applications for personal computer. Satisfactory/No Credit grading only.

600 Doctoral Research and Dissertation (3-15) P/NP only.

610 Special Topics in Empirical Theory and Methodology (3) Advanced methods and procedures of analysis in political science. May be repeated with consent of department. Maximum 9 hours.

615 Formal Political Analysis (3) Assumptions, methods and applications of formal political models, including game theory, rational choice theory, and public choice theory, and mathematical modeling. May be repeated with consent of instructor. Maximum 9 hours.

628 Topics in Political Theory (3) Selected issues and problems in normative political theory. Specific content determined by instructor. May be repeated with consent of instructor. Maximum 9 hours.

639 Special Topics in American Government and Politics (3) Advanced study of selected topics. May be repeated with consent of instructor. Maximum 9 hours.

640 Special Topics in U.S. Constitutional Law (3) Systematic analysis of published research and judicial decision: development of constitutional law as major component of public policy. May be repeated with consent of department. Maximum 9 hours.

654 Contemporary Public Policies (3) Problems in one or more public policy areas from political and administrative perspectives. Topics selected by instructor. May be repeated with consent of department. Maximum 9 hours.

660 Contemporary Perspectives on Public Administration (3) Development of theory in public administration: contemporary critiques and alternatives. May be repeated with consent of instructor. Maximum 9 hours.

668 Special Topics in Public Administration (3) Analysis of selected issues and problems in public administration. May be repeated. Maximum 9 hours.

670 Special Topics in Comparative Government and Politics (3) Research into selected topics. May be repeated with consent of department. Maximum 9 hours.

682 Theory and Analysis of U.S. Foreign Policy Processes (3) Theoretical approaches to decision making in foreign policy area and analysis of policy-making process. May be repeated with consent of department. Maximum 9 hours.

684 International Law (3) Provides the analytical tools necessary to evaluate the legality of events under international law. Presents the law relevant to politics, such as the use of force, human rights, war crimes, international courts, principles of jurisdiction, and air, space and sea law.

688 Special Topics in International Politics (3) Selected issues and problems in international politics. Specific content determined by instructor. May be repeated with consent of instructor. Maximum 9 hours.

**Department of PSYCHOLOGY**

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

James E. Lawler, Head
Debora R. Baldwin, Liaison
Frederick T.L. Leong, Liaison
Robert G. Wahler, Liaison

**Professors**

Burghardt, G.M. (Alumni Distinguished Professor), PhD ............... Chicago
Davis, K., EdD ................................................. Georgia
 Handler, L., PhD ............................................. Michigan State
 Hector, M., PhD ............................................. Michigan State
 Jones, W.H., PhD .......................................... Oklahoma State
 Lawler, J.E. (Head), PhD ...................................... North Carolina
 Lawler, K.A., PhD ........................................... North Carolina
 Leong, F.T.L., PhD .......................................... Maryland
 Lounsbury, J.W., PhD ....................................... North Carolina
 Lubar, J.F., PhD ............................................. Michigan State
 Malone, J.C., PhD .......................................... Duke
 Nash, M.R., PhD ........................................... Ohio
 Pollio, H. R. (Alumni Distinguished Service Professor), PhD ....... Michigan
 Samejima, F., PhD ......................................... Kejo (Japan)
 Sandidges, R.A., PhD ...................................... Florida State
 Sundstrom, E.D., PhD ...................................... Utah
 Travis, C.B., PhD .......................................... California (Davis)
 Wahler, R.G., PhD .......................................... Washington

**Associate Professors**

Baldwin, D., PhD .............................................. Kent State
 Hutchens, T., PhD ............................................. Georgia
 McIntyre, A., PhD .......................................... Yale
 Morgan, W.G., PhD ........................................ Tennessee
 Welsh, D.P., PhD ............................................. Massachusetts
**MAJOR DEGREES**  
Psychology .................................................. MA, PhD

**MASTER OF ARTS**  
**Psychology Major**

Graduate study leading to the MA with a major in psychology is available and a concentration in experimental psychology. This program is appropriate for students who desire a master’s degree as part of their progress toward a doctorate or for those who wish to complement a degree in a different field.

**ADMISSION**

Any student with a BA or BS may apply to the Department of Psychology for admission to the master’s program. All students must also submit scores from the Graduate Record Examination (general and subject).

**MAJOR ADVISOR AND COMMITTEE**

Initially, the Director of Experimental Psychology will advise the student. As soon as possible, the student must select an advisor and obtain his or her approval for registration. Subsequently, the advisor and student will select two additional faculty members to comprise the student’s master’s committee. Final committee approval comes from the Graduate Dean, upon recommendation by the Department Head.

**REQUIREMENTS**

All students must complete 32 semester hours of graduate level courses in psychology. These hours must include 515, 521-522, or Statistics 531-532 or an equivalent sequence; 565 or 420; six semester hours of Thesis 500; and twelve hours of 500- or 600-level foundation courses; plus additional graduate level hours to reach the 32-hour requirement. Students must earn a grade of B or better in all courses that are to count toward the 32-hour total. Students must also propose, conduct and successfully defend an original piece of research in the form of a master’s thesis.

**DOCTOR OF PHILOSOPHY**  
**Psychology Major**

A student with a BA or BS may apply to the Department of Psychology for admission to the doctoral program with a concentration in experimental psychology or clinical psychology. All students must submit scores from the Graduate Record Examination (general and subject).

**Experimental Psychology Concentration**

The PhD program in psychology with a concentration in experimental psychology is designed to allow students to select from a variety of specializations oriented toward careers in research, teaching, and application of psychology in academic, institutional, or industrial settings. The program is flexible, individualized, and emphasizes a professional apprenticeship model of training.

**REQUIREMENTS**

- Twelve hours of statistics and research (521-522 or Statistics 531-532 or equivalent and 6 additional hours in research methods or design).
- Fifteen semester hours in experimental psychology (565 or equivalent and 4 courses from the following: 510, 511 or 512, 513, 543, 546 or 547, 550, 560, and 570 or 571).
- Six semester hours of research practicum (509).
- Psychology 528—preparation for college teaching.
- Two 600-level graduate seminars.
- Six semester hours of graduate level courses outside the Psychology Department.
- Pre-dissertation research project involving the collection of original data or the original analysis of existing data, reported in publishable form and accepted by the student’s advisory committee.
- Comprehensive examination, determined and evaluated by the student’s doctoral committee. This examination is comprised of an integrative review or theoretical paper and an oral exam or additional questions.
- Twenty-four hours of dissertation research (600).
- An original piece of research in the form of a doctoral dissertation, proposed, conducted, and defended.

**Clinical Psychology Concentration**

This program is designed to lay the groundwork for a career as a clinical psychologist capable of working in both academic and applied settings. The program emphasizes the theoretical foundations of psychology as well as supervised experience oriented toward the development of practical skills. The program embodies a model of clinical psychology in which practice and research are integrated.

**REQUIREMENTS**

After forming the doctoral committee, each student must pass a comprehensive examination administered and evaluated by the committee. Clinical program students must complete a pre-dissertation research project by the end of the second year.

The comprehensive examination is organized around a research case study of one client who has been assessed and/or treated by the student in the departmental psychological clinic. In addition to the case presentation, the paper presents the student’s comprehensive review of relevant research and theory as a context for procedure, results, and discussion of the case. All doctoral students must complete a minimum of 78 hours of graduate level courses, including courses required by their program; at least 6 hours in courses outside of psychology; and at least 24 hours of dissertation research (Psychology 600). Finally, students must complete an acceptable doctoral dissertation and conduct a satisfactory oral defense of the dissertation.

Requirements are as follows:

- Apprenticeship with one faculty member during the first year, two days each week.
- Pre-dissertation research project completed before forming a doctoral supervisory committee, reported in written form acceptable to two members of the faculty or, if reviewed and accepted for publication or external presentation, by one member of the faculty.
• Supervised clinical placement two days (16 hours) each week during the second year, and the following option during the third and fourth years: (a) continued two day clinical placement in the third and fourth years; (b) teaching assistantship in the department in either the third or fourth year and two day clinical placement in the other year.
• Satisfactory completion of listed courses (or equivalents) in the following sixteen categories:
  1. Foundations of Psychology: Biological Factors, Perception, Learning, Thinking, Motivation (513)
  2. Interviewing and Observation (558) and Laboratory (559)
  3. Research Practicum (509) (4 hours)
  4. Life-Span Development (512) or Developmental Psychology (511)
  5. Personality: Theory and Research (570) and Developmental Psychopathology (597)
  6. History and Systems of Psychology (565)
  7. Research Questions and Designs (580)
  8. Psychological Assessment I and II (594-595) and Laboratory (596)
  9. Analysis of Variance for Social Sciences (521) and Multiple Regression for Social Sciences (522)
  10. Social Psychology (550)
  11. Field Placement in Clinical Psychology (695) (18 hours)
  12. Clinical Psychopathology (599)
  13. Psychometrics (555) or Applied Psychological Measurement (557)
  14. Ethical Issues in Professional Psychology (598)
  15. Psychodynamic Psychotherapy I and II (670-671) and Laboratory (673) (4 hours)
  16. Doctoral Research and Dissertation (600) (24 hours)
• Students who choose a teaching assistantship in the third or fourth year must have satisfactorily completed 528 College Teaching in Psychology.
• Satisfactory completion of a one-year clinical internship at a site approved by the program.

**Counseling Psychology Concentration**

The counseling psychology program is based upon the scientist-practitioner model of training which stresses both research and practice. It is designed to enable students to become behavioral scientists, skilled in psychological research and its application. Students are trained to work with people who have generally integrated or intact personalities, to focus on these individuals’ strengths and assets, and to use relatively brief interventions to further enhance these strengths or to remediate deficiencies within them. While working with others, counseling psychologists tend to focus on the interactions of the personal, educational and vocational environments of the individuals, groups, families and organizations with whom they work.

**REQUIREMENTS**

The counseling psychology program consists of a minimum of 107 semester hours of graduate credit. This includes 83 hours of course work and 24 hours of dissertation research (see below).

Students are assigned a temporary faculty advisor upon admission to the program. By the end of the first calendar year students are expected to have selected an advisory committee. Prior to taking their comprehensive examinations, students must have an advisory committee meeting. present an acceptable pro-gram of study to the advisory committee, and have their research competency approved and accepted by the program’s research review committee. The examinations cover the counseling psychology core and the student’s cognate.

After passing comprehensive examinations, the student may form the doctoral committee, which approves the student’s dissertation proposal and verifies that the student’s dissertation is acceptable for the doctoral degree. The doctoral dissertation is original research that is theoretically based and psychological in nature. It must fulfill the requirements and procedures as stated in the University of Tennessee, Knoxville, Graduate Catalog, current edition.

The following are required of all students:
• Students must accumulate a minimum of 600 hours in practicum experience. Students are required to have three semesters of individual practicum and one semester of group practicum. Practicum sites include the University of Tennessee, Knoxville, Counseling Center, community agencies, the University of Tennessee, Knoxville, Career Resources Center, and area schools. Opportunities for additional practicum experiences exist in the community.
• In addition to course work, students must demonstrate competency in research methodology and academic scholarship prior to the doctoral committee’s approval of the student’s dissertation proposal. The research project is to be initiated after the student has entered the counseling psychology program.
• Satisfactory completion of the following curriculum:
  A. Psychological Foundations—minimum of 21 semester hours
     1. History and Systems of Psychology
     2. Biological Bases of Behavior
     3. Cognitive-Affective Bases of Behavior
     4. Social Basis of Behavior
     5. Individual Behavior—minimum of 6 semester hours
     6. Life Span or Developmental Psychology
  B. Quantitative and Research Skills—minimum of 15 semester hours
     1. Statistics—minimum of six hours
     2. Qualitative Research—minimum of 3 hours
     3. Research Design—minimum of three Hours Directed Research
  C. Counseling Psychology Core— minimum of 39 semester hours
     1. Prepracticum in Career Development
     2. Vocational Theory and Practice
     3. Practicum—minimum of 9 semester hours
     4. Foundations of Counseling Psychology—minimum of 6 semester hours
     5. Cross-cultural Counseling
     6. Ethical, Legal and Professional Issues in Psychology
     7. Assessment—minimum of 6 semester hours
  D. Departmental Seminar
• Students are also required to complete a 2000-hour internship prior to graduation. In consultation with the student and the student’s doctoral committee chair, the Training Director approves the internship site, which must meet APA Guidelines.
• Students who wish to have experiences as a teaching assistant must first satisfactorily complete department’s teaching practicum course.
GRADUATE COURSES

Psychology (830)


409 Group Facilitation (3) Study of theory and technique through supervised experience in small groups. Prereq: General Psychology or consent of instructor. May be repeated. Maximum 6 hours.

410 Sensory Processes and Perception (3) Survey of physiological and psychological theories of perception. Audition and vision. Prereq: 385 or Math 115 or Statistics 201 or graduate standing.

415 Psychology of Religion (3) History of psychology of religion: various philosophical and empirical orientations. Psychological function of religion for individuals and society. Prereq: 110 or consent of instructor.

420 History and Systems of Psychology (3) History of psychological thought. Classical approaches and recent developments. Prereq: 110 or consent of instructor or graduate standing.

424 Psychology and the Law (3) Psychological aspects of legal systems. Prereq: 110 or consent of instructor.

430 Health Psychology (3) Survey of psychological factors related to health and illness: stress, personality, and environment. Applications of psychological treatments to physical illness. Prereq: 110 or consent of instructor.

434 Psychology of Gender (3) Biological, psychological, and social factors in gender. Importance of gender roles and stereotypes for behavior and experience. Prereq: 110 or consent of instructor. (Same as Women’s Studies 434.)

440 Organizational Psychology (3) Social-psychological analysis of organizations, role-theory and systems theory. Prereq: 110 and 360 or consent of instructor.


450 Comparative Animal Behavior (3) (Same as Ecology and Evolutionary Biology 450.)

459 Comparative Animal Behavior Laboratory (3) Coreq: 450. (Same as Ecology and Evolutionary Biology 459.)

461 Physiological Psychology (3) Nervous system and physiological correlates of behavior. Biological basis of emotion, learning, memory and stress. Prereq: 110 or consent of instructor and one of the following sequences, Biology 101 and 102, Biology 130 and 140, Anthropology 110 and 210.

470 Theories of Personality (3) Survey of major theories of human personality and their development. Prereq: 110 or consent of instructor.

475 Adolescent Development (3) Theoretical perspectives and empirical research findings pertinent to adolescent development. Prereq: 110 or consent of instructor.

480 Theories of Learning (3) Classical and current approaches to learning and cognition. Prereq: 110 or consent of instructor.

482 Topics in Psychology (3) Intensive analysis of special topics: Afro-American psychology or evaluation of programs in community. Prereq: 110 or consent of instructor. May be repeated. Maximum 6 hours.

489 Supervised Research (1-9) Prereq: Consent of instructor. May be repeated. Maximum 12 hours in 399, 489, 491, 492, and 493 combined may apply toward undergraduate major.

500 Thesis (1-15) P/NP only.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

505 Research Design (3) Techniques for planning and conducting research in controlled and natural settings: experiments, quasi-experiments, observational studies, surveys, and program-evaluations. Development of questions and hypotheses for study. Design of studies to maximize validity. Prereq: Consent of instructor.

507 Foundations of Applied Psychology (3) Fundamental methods for application of psychology principles and techniques in community, organizational, and industrial settings, and related ethical and theoretical issues. Prereq: 505 and consent of instructor.

508 Readings and Special Issues in Psychology (1-3) Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

509 Research Practicum (1-3) Required of first-year graduate students in psychology. May be repeated. Maximum 9 hours. Satisfactory/No Credit grading only.

510 Topics in Psychology (3) Intensive examination of selected issues in psychology. Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

511 Developmental Psychology (3) Normal processes of human socialization; physical, cognitive, and emotional development from conception through infancy, childhood, and adolescence. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

512 Life-Span Development (3) Theories and research concerning normal human development throughout life, adulthood and old age. Prereq: Consent of instructor.

513 Foundations of Psychology: Biological Factors, Perception, Learning, Thinking, Motivation (3) Intensive survey. Prereq: Consent of instructor.

515 Colloquium in Experimental Psychology (1) Research and practical issues in experimental psychology. Prereq: Consent of instructor. May be repeated. Maximum 4 hours. Satisfactory/No Credit grading only.

517 Foundations of Counseling Psychology (3) History, theory, research and practice of counseling psychology. May be repeated. Maximum 6 hours.

521 Analysis of Variance for Social Sciences (3) Analysis of variance and statistical theory: application within social science framework. Contrasts among means, trend analysis, analysis of covariance, analysis of factorial designs, and multivariate approaches to analysis of within subjects data.

522 Multiple Regression for Social Sciences (3) Complexities of regression analyses and theory: application within social science framework. Bivariate correlation and regression, multiple regression, analysis of variable sets, interactions among continuous predictors, reducing co-linearity between main effects and application of multiple regression to testing procedures of mediation and moderation.

526 General Vertebrate Neuroanatomy (3) Lecture and laboratory. Structure and functioning of central and peripheral nervous system. Prereq: 461 or equivalent and consent of instructor.

527 Behavioral Neurology (3) Disorders of nervous system, organic brain dysfunctions. Diagnosis and treatment. Prereq: Consent of instructor.

528 College Teaching in Psychology (3) Concepts, techniques, and materials for teaching psychology at college and/or university level. Supervised practice. Prereq: Consent of instructor. Satisfactory/No Credit grading only.

531 Personality and Mental Hygiene (3) Mental health perspectives and their application to social institutions.

543 Cognitive Science (3) Theories and research. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

545 Advanced Animal Behavior (3) (Same as Ecology and Evolutionary Biology 545.)

546 Ethological Psychology (3) Basic ethology and comparative psychology. Implications for human behavior. Prereq: Consent of instructor. (Same as Ecology and Evolutionary Biology 546.)

547 Conceptual Foundations of Evolution and Behavior (3) Critical evaluation of seminal writings on theory and methods in comparative analysis of behavior. (Same as Ecology and Evolutionary Biology 547.)

550 Social Psychology (3) Survey of theory and research concerning interpersonal interaction and individual behavior in social context. Prereq: Consent of instructor.

554 Laboratory in Psychometrics (3) Further learning about psychometrics: item response theory (modern mental test theory), factor analysis, and applications of those methods using computer programs to simulated or empirical data. Prereq: 555. May be repeated. Maximum 6 hours.

555 Psychometrics (3) Basic concepts: factor analysis, scaling, test theories, probability models and their applications, computerized adaptive testing and other topics. Prereq: Statistics 537-538 or equivalent. May be repeated. Maximum 6 hours.

557 Applied Psychological Measurement (3) Issues and techniques in applying psychological measurement in organizational, clinical, and community research. Prereq: Statistics 537-538 or equivalent or consent of instructor. May be repeated. Maximum 6 hours.
558 Interviewing and Observation (3) Sensitizing students to own feelings and beliefs and to feelings of interviewee, and analysis of language content, style, and body language. Exploration of various important aspects of interviewee’s life. Prereq: Admission to doctoral program in clinical psychology or consent of instructor. Coreq: 559.

559 Laboratory in Interviewing and Observation (1) Prereq: Admission to doctoral program in clinical psychology or consent of instructor. Coreq: 558.

560 Psychology of Learning (3) Review of current evidence from research involving human and/or non-human animals. Prereq: 400 and consent of instructor. May be repeated. Maximum 6 hours.

565 History and Systems of Psychology (3) History of philosophy concerning psychology. Major systems of psychology which emerged during 20th century. Prereq: Graduate standing.

567 Group Dynamics and Methods (3) (Same as Counselor Education 554.)

568 Prepracticum in Career Development (3) Didactic instruction and practice in counseling and career exploration. Prereq: Admission to doctoral program in Counseling Psychology.

569 Practicum in Counseling (3) (Same as Counselor Educator 555.)

570 Personality: Theory and Research I (3) Advanced survey of psychodynamic and neo-Freudian approaches to personality-related research. Prereq: Admission to clinical program or consent of instructor.

571 Personality: Theory and Research II (3) Advanced survey of behavioral and humanistic approaches to personality: related research. Prereq: Admission to clinical program or consent of instructor.

572 Individual Cognitive Assessment in Counseling (3) Basic concepts and applications in individual assessment of intelligence; proficiency in administrative scoring, interpretation for Wechsler, adults and children, Stanford-Binet. Prereq: 445, Counselor Education 525 or equivalent. Satisfactory/No Credit grading only.

573 Descriptive and Theoretical Psychopathology (3) Current psychiatric taxonomic system. Theories of etiology for various diagnostic categories. Examples from written case vignettes and recorded interviews. Prereq: Admission to doctoral program in clinical psychology or consent of instructor.

574 Cross-Cultural Counseling: Theory and Research (3) (Same as Counselor Education 570.)

575 Psychopharmacology (3) Connections between pharmacology and psychology. Prereq: Consent of instructor.

576 Object Relations (3) European and American conceptions of normal and psychopathological development of object relations. Significance for psychotherapy, psychoanalysis, and psychoanalytic theory. Prereq: Admission to doctoral program in clinical psychology or consent of instructor.

580 Research Questions and Designs (3) Question-asking process in research and strategies or designs through which answers might be derived. Prereq: Admission to doctoral program in clinical psychology or consent of instructor.

593 Independent, Off-campus, or Foreign Study (1-15) Prereq: Consent of instructor. May be repeated. Maximum 9 hours. Satisfactory/No Credit grading only.

594 Psychological Assessment I (3) Basic concepts and techniques of adult assessment: intelligence tests and personality tests. Prereq: Admission to doctoral program in clinical psychology or consent of instructor.

595 Psychological Assessment II (3) Basic concepts and techniques of adult assessment: intelligence tests and personality tests. Prereq: Admission to doctoral program in clinical psychology and 594 or consent of instructor.

596 Laboratory in Psychological Assessment (1) Prereq: Admission to doctoral program in clinical psychology or consent of instructor. Coreq: 594 or 595. May be repeated. Maximum 4 hours. Satisfactory/No Credit grading only.

597 Developmental Psychopathology (3) Research and theory on pathways to psychological disorders and personal adjustment. Prereq: 571, or equivalent or consent of instructor.

598 Ethical Issues in Professional Psychology (3) Conceptual and practical applications in human services and research. Prereq: consent of instructor.

599 Clinical Psychopathology (3) Formal use of descriptive categories used in the diagnosis of abnormal behavior. Prereq: 597, or equivalent or consent of instructor.

600 Doctoral Research and Dissertation (3-15) P/NP only.

601 Seminar in Psychology (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.
A Master of Arts with a major in philosophy and a concentration in religious studies is available. Contact the department for details of this program. Graduate courses in religious studies provide opportunity for students in a variety of disciplines to pursue work in religious studies as a graduate concentration.

GRADUATE COURSES

Religious Studies (863)

405 Modern Jewish Thought (3) History, culture, and geography of the now Israeli portion of Levant from 1850 to present. Founding of modern state of Israel in 1948 and political complexities of Middle East. Israeli culture and literature. Writing emphasis course. (Same as Judaic Studies 405.)

411 Modern Religious Philosophies (3) Religious implications of major Western thinkers and movements from Nicolas of Cusa to nineteenth-century German Idealists. (Same as Philosophy 411.)

412 Classical Indian Systems of Philosophy: The Moksha Tradition (3) Investigation of selected writings and philosophic problems of traditions of Samkhya, Yoga, Vedanta, Buddhism, or Jainism. Prereq: 374 or 376 or consent of instructor.

425 Seminar in Western Religions (3) Selected figures, themes, movements, and problems. Content varies. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

430 Seminar in American Religion (3) Selected figures, themes, movements, and problems. Content varies. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

440 Seminar in Comparative Religion (3) Selected figures, themes, movements, and problems. Content varies. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

490 Readings and Research in Religious Studies (3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

499 Proseminar in Religious Studies (3) For advanced students in religious studies; required for majors. Selected specific topics: nature and function of myth in religion, problem of evil, transcendence, theories of religion, hermeneutics, integrating various disciplines involved in study of religion. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.


505 Religious Texts and Contexts (3) Critical study of texts and their interpretations: sacred texts, canons, commentaries, religious autobiographies, and religious themes in literature. May be repeated. Maximum 6 hours.

506 Historical and Comparative Studies of Religions (3) Description and analysis of religious traditions, phenomena, and themes. May be repeated. Maximum 6 hours.

507 Religion, Power and Society (3) Studies of religions in relation to social structure and political institutions: issues of gender, race, class, ethnicity, caste, slavery, religion and the state, globalization and human rights. May be repeated. Maximum 6 hours.

513 Religion, the Arts, and the Media (3) Material and expressive culture, religion and journalism, mass communication technologies, popular culture, issues of representation, cultural studies methodologies. May be repeated. Maximum 6 hours.

514 Religion and Healing (3) Ecology of religion, nature, shamanism, healing of body and mind, spirituality, religious dimensions of medical ethics. May be repeated. Maximum 6 hours.


520 Readings in the Study of Religion (1-6) May be repeated. Maximum 12 hours.

532 Topics in the History of Religions (3) Prereq: Consent of instructor.

533 Topics in Religious Thought (3) Prereq: Consent of instructor.

591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences.

The Sociology Department offers graduate study leading to the Master of Arts and the Doctor of Philosophy. The MA program includes a thesis and non-thesis option.

The graduate program has concentrations in criminology, environmental sociology, and political economy. The criminology concentration includes 505, 551, 653 and 655. The environmental sociology concentration includes 560, 563, 661 and 665. The political economy concentration includes 504, 540, 541, 543, 644, and 645.

Both the master’s and the doctoral program allow for the construction of individualized programs of study. Detailed information may be obtained from the Programs and Curriculum Committee in Sociology. New students are admitted in fall semester only and applications must be received by the Graduate Student Services Office by February 1.
ADMISSION
• Acceptable scores on the general Graduate Record Examination (verbal, quantitative, and analytical) are required.
• Three letters of recommendation (forms may be obtained from the department).
• Completion of the appropriate previous degree (baccalaureate, preferably with a major in one of the social sciences, for the MA program; master’s degree in one of the social sciences for the doctoral program).

MASTER OF ARTS
Sociology Major
REQUIREMENTS
Thesis Option
A minimum of 30 hours beyond the baccalaureate degree, including 24 hours of coursework and 6 hours of Thesis 500, is required. Students must complete Sociology 521, 531, Statistics 531, and one foundation course (504, 505, or 560). At or near the end of all coursework, the student must take an oral examination on course material and thesis. The examination will be administered by the student’s committee.

Non-Thesis Option
A minimum of 30 hours of coursework is required, including Sociology 521, 531, Statistics 531, and one of the following: 504, 505, or 560. Sociology 534, 622, and Statistics 532 are recommended. A student’s plan of study should follow one of the following approaches:
• Plan 1: 6 hours in one of the department’s concentrations and 6 hours in a second area, including areas outside the department, subject to the approval of the student’s committee.
• Plan 2: 12 hours in a special area of study approved by the student’s committee and the department’s Programs and Curriculum Committee. Students are encouraged to prepare a paper synthesizing their knowledge of the concentration(s). Students who incorporate supervised field experience in their programs are encouraged to prepare a report based on those experiences that demonstrates their understanding of research, theory, and report writing. All students must take final written and oral examinations that include questions on their general coursework in theory and methods and on their special areas of study.

Subject to approval by the student’s committee, up to 12 hours may be taken in courses outside the department for either program. Sociology courses at the 400 level may also be taken with the approval of the student’s committee.

DOCTOR OF PHILOSOPHY
Sociology Major
REQUIREMENTS
Twenty-four hours of coursework beyond the master’s degree are required (exclusive of Satisfactory/No Credit credits). Twelve hours of course credit in Sociology at the 600 level are required. Students who enter the program without the courses required for the MA degree (521, 531, Statistics 531) or their equivalents must take them as remedial work which does not apply to their residence. Students must complete Sociology 622; 534, 633, or 636; and Statistics 532 or another advanced course in statistics. Completion of 9 hours in each of two concentrations is encouraged. A student who cannot achieve his/her educational goals within the department’s concentrations may construct an individualized course of study subject to the approval of the student’s doctoral committee and the Curriculum Committee. Sociology courses at the 400 level may not be taken without the consent of the student’s advisor and the Curriculum Committee. Six hours may be taken in related fields without petitioning for approval. The student’s program may include a minor or cognate field.

Comprehensive Examinations
Written examinations in four areas are required (sociological theory, research methodology, and two substantive areas). Doctoral students are eligible to take the theory and methodology examinations whenever offered. Substantive examinations may be taken upon completion of theory and methodology examinations. Detailed information on examinations and examination options may be obtained from the department.

Dissertation and Final Examination
A dissertation based on original research must be completed (24 hours). The candidate must pass an oral defense of the dissertation, including the theory and methodology related to the research, in accordance with the deadlines specified by Graduate Student Services.

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 Economics for program description.

Gerontology Minor
Graduate students in the Department of Sociology may pursue a specialized minor in gerontology. This interdepartmental/interdisciplinary minor gives the student an opportunity for combining the knowledge about aging in American society with his/her major concentration.

GRADUATE COURSES
Sociology (915)
415 Sociology of Aging (3) How roles and statuses change with age in relation to major social institutions; impact that rapidly increasing number of older people has on society, effect of society on older people.
446 The Modern World System (3) Critical examination of capitalist world-system as social system, its coherence, boundaries, regions, member groups, cleavages, and patterns of conflict. Analysis of who gets what, why, and how in global political economy.
451 Criminal Justice (3) Critical assessment of criminal justice apparatus and its components. Brief examination of police; criminal courts and institutions, and programs; prison probation, and parole. Analysis of their operation and impacts. Recommended prereq: 350. (Same as Legal Studies 451.)
455 Society and Law (3) How laws and legal processes are affected by social change, social impact of legal sanctions, relations between law and social justice. (Same as Legal Studies 455.)
459 White-Collar Crime (3) Distinctive nature and dynamics of white-collar crime, victims and costs of white-collar crime, organizations as white-collar offenders, causal theories, and dynamics of responses to white-collar crime by private and public parties.
462 Population (3) Demographic factors and social structure; trends in fertility, mortality, population growth, migration, distribution, and composition; population policy.

464 Urban Ecology (3) Relation of humans to their urban environment: conservation and use of appropriate technology. (Same as Urban Studies 464.)

465 Social Values and the Environment (3) Human dimensions of ecosystem management and public policy. Applied focus on social values activated within specific biophysical and social settings. Prereq: 110 or 120 or consent of instructor.

471 Sociolinguistics (3) (Same as English 471; Linguistics 471.)

500 Thesis (1-15) P/NP only.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

504 Sociological Foundations of Political Economy (3) Survey of contemporary sociological theories of political economy, sources of political and economic power and conflict.

505 Foundations of Criminology (3) Critical overview of contemporary developments in criminology, theories of crime causation and theories of responses to crime. Prereq: 350 or equivalent.

506 Social Justice and Public Policy (3) Examines the formulation and consequences of public policy, analyzing: the general public policy process model; the model's specific applications to criminal justice policy, environmental policy, and economic and political policies; and techniques of policy evaluation research.

507 Foundations of Social Psychology (3) Current and classical theoretical perspectives in social psychology.

510 Professional Preparation (1) A variety of one-credit seminars that offer training in specific aspects of professional socialization. May be repeated. Maximum 6 hours. Satisfactory/No Credit grading only.

521 Sociological Theory I (3) Assessment of what sociological theory is; its major figures and their approaches to understanding society.

531 Research Methods in Sociology (3) Research design, measurement, sampling, quantitative and qualitative data collection techniques, data, reduction, and analysis.

534 Advanced Sociological Analysis (3) Underlying assumptions and logical procedures used by sociologists in formulating explanations; foundations of sociological research strategies and techniques.

541 Collective Behavior, Social Movements, Social Change (3) Basic theory and research on conditions of social unrest in human collectivities and efforts of collectives to change existing society.

543 Sociology of Development (3) Sociological theories and studies of development: modernization, colonialism, dependency; comparative impact of various development paths upon selected aspects of social structure and change.

551 Delinquency and the Social Structure (3) How study of delinquency and juvenile justice is affected by changing structures of childhood and adolescence, changing demographic and institutional influences, and changing views about responsibility and punishment.

560 Environmental Sociology (3) Systematic treatment of current research in environmental sociology. Social impact analysis and conflicts over environmental issues.

562 Sociology of Environmental Policy (3) Examines the history of environmental use and environmental protection; the policy process; the institutional and cultural barriers to improved environmental policies; and potential policies for sustainability.

585 Seminar in Gerontology (1)(Same as Counselor Education 585; Educational Psychology 585; Exercise Science 585; Health 585; Nursing 585; Public Health 585; Social Work 585.)

591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences.

599 Readings (3) Selected topics. May be repeated. Maximum 6 hours.

600 Doctoral Research and Dissertation (3-15) P/NP only.

622 Sociological Theory II (3) Distinct schools of sociological theory and contributions of their principal exponents. Prereq: 521 or consent of instructor.

629 Supplementary Readings in Sociological Theory (3) Individual guidance. Preparation for comprehensive examination. Prereq: Consent of instructor. Satisfactory/No Credit grading only.

633 Survey Design and Analysis (3) Systematic exploration of survey problems through student participation in design and analysis of survey. Prereq: 531 or consent of instructor. (Same as Child and Family Studies 633.)

636 Field Research (3) Research experience in selected field sites using techniques of interviewing, participant observation, and other methods of field research. Prereq: 531 or consent of instructor.

639 Supplementary Readings in Methodology (3) Individual guidance. Preparation for comprehensive examination. Prereq: Consent of department. Satisfactory/No Credit grading only.

644 Political Sociology (3) Critical examination of theories of state and political processes.

645 Advanced Studies in Political Economy (3) Topical seminar. Prereq: 504 or consent of instructor. May be repeated. Maximum 6 hours.

649 Supplementary Readings (3) Prereq: Consent of department. May be repeated. Maximum 6 hours. Satisfactory/No Credit grading only.

653 Sociology of Law (3) Intensive examination of selected topics in sociology of law. Prereq: 505 or consent of instructor.

655 Advanced Studies in Criminology (3) Intensive examination of selected topics in criminology. Recommended prereq: 505. May be repeated. Maximum 6 hours.

661 Environmental Theory (3) Historical and contemporary studies of interaction between humans and their environment. Prereq: Consent of instructor.

665 Advanced Studies in Environmental Sociology (3) Topical seminar covering particular lines of research and theory within area. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

675 Advanced Studies in Social Psychology (3) Selected contemporary research issues related to social psychological theories. Prereq: 541 or consent of instructor. May be repeated. Maximum 6 hours.

695 Advanced Special Topics (3) Topic of special interest or student-initiated courses that will not be regularly offered. Prereq: Consent of department. May be repeated. Maximum 6 hours.

699 Tutorials in Advanced Topics (3) Individual instruction. Prereq: Consent of department. May be repeated. Maximum 6 hours.

Department of THEATRE

http://theatre.utk.edu

Blake E. Robison, Head

Professors
Black, W.R., MFA ................................................................. Illinois
Custer, M., MFA ................................................................. Wisconsin
Robison, B., MFA ............................................................... North Carolina

Associate Professors
Craven, E., MA ................................................................. Tennessee
Gould, B.K.A., MFA .......................................................... Catholic
Van den Berg, K., PhD ....................................................... Indiana
Weber, T., MFA ................................................................. Alabama

Assistant Professors
Champelli, J., MFA .............................................................. Penn State
Heil, M., MFA ................................................................. Texas
Yeager, K., BFA ................................................................. Penn State

MAJOR DEGREE
Theatre ................................................................. MFA

The Department of Theatre offers the Master of Fine Arts degree with a major in theatre and concentrations in costume design, lighting design, scene design, and performance. Not all areas of concentration accept applicants every year.

UT Theatre maintains an active presence on the international theatre scene through the engagement of distinguished guest artists, touring to foreign theatre festivals, participation in international conferences, and other educational initiatives.
Applicants must have completed undergraduate degrees approximately equivalent in requirements to those specified for degrees conferred by the University of Tennessee, Knoxville.

ADMISSION
Three letters of recommendation and interviews with appropriate faculty are required of all applicants. Applicants for admission to the MFA design/technical theatre programs must submit samples of their work. Auditions are required of MFA degree performance applicants.

For detailed information about the graduate program, contact the Director of Graduate Studies, Department of Theatre.

MASTER OF FINE ARTS
Theatre Major

REQUIREMENTS
At least 60 semester hours, 40 of which must be at the 500 level or above, are required for the Master of Fine Arts with a major in theatre, which is normally to be completed in three consecutive years of full time residence. Theatre 501 is required the first year of residence. Three additional hours at the 500 level are required from history, literature, or dramaturgy. Students in the MFA degree program are evaluated annually by juried performance or portfolio submission. Continuation in the program is with the approval of the faculty committee for the MFA degree program. Theatre 599 (Projects in Lieu of Thesis) and an oral defense of the project must be completed satisfactorily before the degree is conferred.

In addition to the core requirements listed above, each area of concentration has specific requirements:

Design Concentration
Required courses are at least 12 hours of Theatre 580 (Design Seminar) and at least 6 hours in the projects courses. Theatre 503 (Elements of Design for Theatre) is required in the first year of residence.

Performance Concentration
At least 12 hours each of 520 (Master Class in Performance Acting); 523 (Master Class in Performance: Movement); and 525 (Master Class in Performance: Voice). Coursework in this concentration is conducted in a conservatory environment. In the third year, students are expected to intern with either the resident professional Clarence Brown Theatre Company or another regional professional theatre.

Requirements for a Second Master’s Degree
Students admitted to the MFA program who have already earned a master’s or a doctoral degree may apply up to 12 credit hours from the previous graduate program to the MFA degree with approval of the student’s committee, the Dean of the College of Arts and Sciences, and the Dean of Graduate Studies.

Any such credits applied from a previous graduate program would be from courses that are directly relevant to the student’s MFA curriculum and must have been earned within the time limit (6 years) established for completion of the MFA.

GRADUATE COURSES
Theatre (976)

420 Special Studies in Acting (3) Content varies. Exercises in selected concentrated areas such as styles, techniques, approaches, e.g., Shakespeare, movement, humor. Prereq: 320 and consent of instructor. May be repeated. Maximum 9 hours.

425 Selected Musical Theatre Techniques (2) Study and practice of musical theatre material: dance and vocal work. May be repeated. Maximum 4 hours.


440 Costume Design II (3) Costume as an expressive element in dramatic production. Prereq: 340 or consent of instructor.

446 Costume Patternning (3) Draping patterns for period costumes. Corsetry and study of historic patterns 1500-1900. Prereq: 345 or consent of instructor.

450 Advanced Scenery Technology I (3) Study and practice of theatre woodworking; production participation required. Prereq: 250. Graduate credit to theatre MFA students only.

451 Advanced Scenery Technology II (3) Study and practice of metalworking and plastics for theatrical productions; production participation required. Prereq: 250. Graduate credit to theatre MFA students only.

452 Advanced Scenery Technology III (3) Study and practice of stage rigging for theatrical productions; production participation required. Prereq: 250. Graduate credit to theatre MFA students only.

454 Scenery Painting (2) Introduction to materials, techniques, and principles of craft. Gaining skill and understanding through studio experience. Prereq: Consent of instructor.

456 Scenic Design II (3) Advanced studies in set design. Prereq: 355 or consent of instructor.

462 Lighting Design II (3) Advanced lighting design theory and practice. Lab and project intensive. Prereq: 362 or consent of instructor.

464 Computer Assisted Design for Theatre (3) Advanced techniques in computer assisted design for theatre. Work with CAD, Computer Drawing, Graphics, and/or 3D Modeling software for preparation of theatrical designs. Specific content varies with semester. Admission by consent of instructor only. May be repeated. Maximum 9 hours.

470 Playwriting (3) Advanced instruction in writing of plays. Prereq: Consent of instructor.

491 Foreign Study (1-15) See College of Arts and Sciences.

492 Off-Campus Study (1-15) See College of Arts and Sciences.

493 Independent Study (1-15) See College of Arts and Sciences.

501 Introduction to Graduate Research in Theatre (3) Research tools and methods for theatre artist and scholar.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

503 Elements of Design for the Theatre (3) Analysis of the principles of design through visual, structural, and emotional relationships.

510 Studies in Theatre History (3) Intensive study of selected topics in theatre history. May be repeated. Maximum 9 hours.

512 Dramatic Literature Analysis (3) Dramaturgical strategies of major playwrights, using variety of analytical approaches from Aristotelian to deconstruction.

520 Master Class in Performance: Acting (3) Master class in acting techniques. Theatre MFA students only. May be repeated. Maximum 18 hours.

523 Master Class in Performance: Movement (3) Master class in movement techniques. Theatre MFA students only. May be repeated. Maximum 18 hours.

525 Master Class in Performance: Voice (3) Master class in voice and speech techniques. Theatre MFA students only. May be repeated. Maximum 18 hours.

536 Projects in Play Directing (3) Practical work in play direction involving various lengths and kinds of scripts. May be repeated. Maximum 9 hours.

542 The Social History of Costume (3) Study and analysis of costume as related to society’s manners and mores, architecture and furniture.

545 Millinery for the Stage (2) Pattern making and construction techniques for hats from antiquity to present. Prereq: Consent of instructor.

546 Advanced Costume Patterning (3) Advanced studies in patterning period costume. Development of historic patterns through flat pattern method. Prereq: 446.

547 Painting and Dyeing for the Theatre (3) Fibers, dyes and dye processes; color matching and distressing.

549 Projects in Costume Technology (1-3) Individualized studies in costume technology in theatre production. Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

550 Projects in Technical Theatre (1-3) Problems of set design interpretation and execution. May be repeated. Maximum 9 hours.

551-552 Structural Design for Stage (3,3) Application of advanced theatre technology and analysis of common building materials to design of safe stage scenery. Must be taken in sequence.

553 Projects in Scenic Design (1-3) Conception and completion of major projects, both hypothetical and actual, in scene design. May be repeated. Maximum 9 hours.

554 Studies in Scenic Design (3) Advanced scene design techniques and approaches to design for complex dramas and varied dramatic forms. May be repeated. Maximum 6 hours.

555 Model Building (3) Techniques of model building for scenic designer. Theatre MFA students only. Prereq: 401 and one semester of 580.

556 Drafting (3) Drafting techniques for scenic designer. Theatre MFA students only.

560 Lab Analysis of Realized Lighting Design (3) Realized lighting design projects from concept meeting through opening night. Prereq: Consent of instructor. May be repeated. Maximum 18 hours.

562 Special Problems in Lighting Design (3) Advanced problems in lighting design and theory, problems in Broadway production and touring. Prereq: 462 or consent of instructor.

564 Computer Aided Drafting for the Theatre (3) Computer drafting programs in their use in theatre design and production. Prereq: Consent of instructor.

580 Design Seminar (1-6) Analysis, research, interpretation, and design of plays in a cross-disciplinary environment. May be repeated. Maximum 18 hours.

584 Photography for the Theatre (3) Photographic techniques for shooting live performance events under challenging lighting environments. Prereq: Consent of instructor.

585 Production Workshops (1-6) Directed experience in production collaborations. Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

587 Computer Aided Rendering for the Theatre (3) Computer rendering programs and their use by theatrical designers. Prereq: Consent of instructor.

593 Independent Study (1-3) Individual or group projects. Available to Theatre MFA students only. Prereq: Consent of instructor. May be repeated. Maximum 15 hours.

599 Project in Lieu of Thesis (1-6) Available to theatre MFA students only. Prereq: Minimum of 30 hrs toward MFA degree and consent of advisor. May be repeated. Maximum 9 hours.

The Department of Urban and Regional Planning offers a program of courses leading to the professional degree of Master of Science in Planning. The degree is the normal route for entry into professional positions in urban and regional planning or related fields. Graduates are candidates for positions in regional, city, county, and metropolitan planning agencies; in local, state, and federal agencies concerned with physical, economic, and administrative planning; in private business and organizations dealing with development problems; and in private consulting.

The Master of Science in Planning program is accredited by the Planning Accreditation Board, a joint undertaking of the American Institute of Certified Planners and the Association of Collegiate Schools of Planning.

MASTER OF SCIENCE IN PLANNING
Planning Major

ADMISSION

Applicants are to submit an application for admission to the Office of Graduate Admissions, and two letters of reference from faculty familiar with their prior academic work and a statement describing personal career objectives directly to the department. If the applicant has prior work experience in planning, a reference letter should also be provided by the work supervisor. Graduate Record Examination scores are requested of all applicants whose undergraduate GPA is below 3.0. Other applicants are encouraged to submit them. Students who have not taken an appropriate undergraduate or graduate statistics course will be required to do so.

REQUIREMENTS

The MSP requires completion of at least 48 hours of graduate credit, at least 30 of which must be in planning. The following courses are the core curriculum required of all students: 510, 515, 520, 521, 530, 531, 532, 538 and 540.

Students should plan to enter the program in the fall term to take core courses in the proper sequence.

Each student is required to develop an area of concentrated competence beyond the core curriculum. After selecting the area of concentration, usually by the end of the second semester, the student takes courses from a prescribed set in the subject area. Further enhancement of the concentration is gained by focusing the thesis or major study on the subject. Concentration courses are drawn from the planning curriculum and from other departments in the university. Concentrations are available in land use planning, environmental planning, real estate development planning, and transportation planning.

Students have the latitude to propose an alternate specialization consisting of at least 9 hours of coursework, subject to approval of a faculty committee.

Each student is required to demonstrate competence in individual research. This may be done in one of two ways:

Thesis Option

Complete a thesis for 6 hours credit.

Non-Thesis Option

Complete a major study with acceptable documentation. To be eligible for the major study option, the student must have completed at least 12 hours of graduate coursework in planning with at least a 3.5 cumulative grade-point average. The student meeting these criteria may present a proposal to his/her
committee for a major study that will include at least 6 hours of subsequent coursework. The proposal must justify the selection of the topic, describe the approach to the study, and describe the nature of the final product. The topic will normally be expected to reinforce or complement the student’s concentration.

Successful completion of a comprehensive exam is required before graduation. The exam will normally be taken after completion of the core requirements in the second year. Based on the material generally used by the American Institute of Certified Planners (AICP), this requirement provides an additional capstone experience as well as preparation for meeting AICP professional certification requirements.

Student academic progress is monitored by the faculty. A student failing to maintain an acceptable grade point average may be placed on probation or dismissed from the program.

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 Economics for program description.

GRADUATE COURSES

Planning (782)

401 The City in the U.S. (3) Development and character of U.S. cities. Contemporary issues and selected case studies. *(Same as Urban Studies 401.)*

402 Survey of Planning (3) History of city development and of planning; U.S. experience in urban and other levels of planning. State of the art, process, comprehensive plan, implementation devices. Planning issues in society. Not for credit for MSP degree.


500 Thesis (1-15) P/NP only.

502 Registration for Use of Facilities (1-15) Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. Satisfactory/No Credit grading only.

510 Fundamentals of Planning (3) History of planning, structure and development of urban areas, operations of contemporary planning, trends and issues.

515 Theory of Planning (3) Analysis of nature and objectives of planning process; role of planner and planning function in public decision-making. Prereq: 510 or consent of instructor.

520 Planning Research Methods (3) Overall structuring of social science research in planning practice; familiarity with structure of planning literature information sources, systematic retrieval techniques, processes and tools, practice in posing research questions relevant to planning.

521 Information Systems and Networks in Planning (3) Use and impact of computer-based information systems and global networks in planning and public management. Development of practical skills in design of planning-decision-support systems, databases, Internet-based tools and geographic information systems (GIS). Prereq: Basic experience with computer software and hardware or consent of instructor.


530 Planning Policy Analysis (3) Basic methods of policy analysis and planning. Economic factors underlying the dynamics of change in cities and regions. Coreq: 520 or consent of instructor.

531 Land Use Analysis (3) Concept and framework for land-use analysis. Population, employment, economic-base studies and forecasting techniques.

532 Planning Methods (4) Preparation of comprehensive plans for urban areas or regions. Development of baseline data and forecasts, formulation of alternative plans and strategies, and development of plan implementation programs. Extensive laboratory experience. Prereq: 510, 520, 530 and 531 or consent of instructor.

537 Planning and Transportation (3) *(Same as Civil Engineering 558.)*

538 Urban and Site Design (3-6) Principles of design of residential subdivisions and some components of physical community, shopping centers, institutional complexes, central business districts. Problems of reviewing alternative designs against each other or written regulations. Extensive laboratory experience.

539 Planning for Historic Preservation (3) Planning for preservation, restoration, and conservation of historic buildings, areas and sites as related to comprehensive planning process. National, state, and local government role in preservation, designation of sites, legislative needs, financing and administrative organizations.

540 Legal Aspects of Planning (3) Legal basis for planning and guiding community development. Legal tools of planning. Prereq: 510 or consent of instructor.

543 Cultural Resources Planning (3) Cultural characteristics creating identity and spirit of place; role in environmental and land-use planning; use in protection of natural environment and cultural heritage. Cultural components of National Environmental Protection Act and case studies.

545 Planning and Property Development (2) Process of urban physical growth and change; functioning of private sector real estate development and its relationship to planning. Partnership roles of public and private sectors in urban development and redevelopment. Prereq: 510 or consent of instructor.

548 Tourism Planning (3) Planning of tourist resources and programs within a geographic region. Tourism planning models. Relationships among tourists, tourism developments and planning of tourist attractions and services. Application of techniques in selected area.


552 Development Planning in the Third World (3) Seminar on urban and regional development in Third World nations. Population growth, settlement patterns, economic development, land framework of integrated resource management. *(Same as Ecology and Evolutionary Biology 552.)*

553 International Planning (3) Alternative development models. Comparative analysis of planning practices and policies around world. Population growth, urbanization, environmental degradation, and economic development in developing countries.

555 Environmental Planning (3) Role of planners and planning in maintenance of balance between natural and built environment. *(Same as Ecology and Evolutionary Biology 555.)*

556 Futures Planning (3) Overview of world and community futures literature. Skills in trends assessment, scenario writing, and other futures planning techniques.

560 Strategic Planning and Policy Development (3) Models of strategic planning and process of policy development in applied decision making. Qualitative approaches, program evaluation and impact assessment.

590 Practicum (3) Prereq: Consent of instructor. Satisfactory/No Credit or letter grade.

591 Special Topics (1-3) Prereq: Consent of instructor.

592 Readings in Planning (1-3) Prereq: Consent of instructor. May be repeated.

593 Problems in Planning (1-3) Prereq: Consent of instructor.