The University of Tennessee, Knoxville does not discriminate on the basis of race, sex, color, religion, national origin, age, handicap, or veteran status in provision of educational opportunities and benefits.

UTK does not discriminate on the basis of sex or handicap in the education programs and activities which it operates, pursuant to the requirements of Title IX of the Education Amendments of 1972, Pub. L. 92-318; and Section 504 of the Rehabilitation Act of 1973, Pub. L. 93-112; respectively. This policy extends to both employment by and admission to the University.

Inquiries concerning Title IX and Section 504 should be directed to the Office of the Director for Affirmative Action, 405E Andy Holt Tower, Knoxville, TN 37996-0144, phone: 974-2498. Charges of violation of the above policy should also be directed to the Office of the Director of Affirmative Action.
The University of Tennessee

Board of Trustees

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University Administration

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### Colleges

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University Calendar for 1987-88

Fall Quarter, 1987
September 20 (Sunday)
September 21-23 (Monday-Wednesday)
September 24 (Thursday)
October 28 (Wednesday)
November 14 (Saturday)
November 26-28 (Thursday-Saturday)
December 3 (Thursday)
December 5-9 (Saturday-Wednesday)
December 11 (Friday)

Graduate Student Orientation
Registration
Classes Begin
Change of Registration Deadline
Homecoming (No Classes)
Thanksgiving (No Classes)
Classes End
Final Evaluation Period
Commencement

Winter Quarter, 1988
January 4-5 (Monday-Tuesday)
January 6 (Wednesday)
January 18 (Monday)
February 9 (Tuesday)
March 9-12 (Wednesday-Saturday)
March 15 (Tuesday)

Registration
Classes Begin
Martin Luther King's Birthday (No Classes)
Change of Registration Deadline
Classes End
Final Evaluation Period
Commencement

Spring Quarter, 1988
March 21-22 (Monday-Tuesday)
March 23 (Wednesday)
April 1-2 (Friday-Saturday)
April 26 (Tuesday)
May 25-28 (Wednesday-Saturday)
June 1 (Wednesday)

Registration
Classes Begin
No Classes
Change of Registration Deadline
Classes End
Final Evaluation Period
Commencement

Summer Quarter, 1988
June 7-8 (Tuesday-Wednesday)
June 9 (Thursday)
June 23 (Thursday)
July 4 (Monday)
July 6-8 (Wednesday-Friday)
July 11 (Monday)
July 11 (Monday)
July 12 (Tuesday)
July 26 (Tuesday)
August 10 (Wednesday)
August 12 (Friday)

Registration, First or All Terms
Classes Begin
Change of Registration Deadline, First Term
Independence Day (No Classes)
Registration, Second Term
Classes End, First Term
Change of Registration Deadline, Full Term
Classes Begin, Second Term
Change of Registration Deadline, Second Term
Classes End
Commencement

NOTE: Deadlines for degree requirements on pp. 23-24.

NOTICE: Beginning in the fall of 1988, the University of Tennessee, Knoxville's academic programs will be conducted under a semester calendar. Students entering under this catalog, or previous quarter calendar catalogs, will not graduate under the same curricula. However, the University is committed to intensive academic advising such that no student's program will be delayed due to the change to the semester calendar.
University Calendar for 1988-89

Fall Semester 1988
- August 21 (Sunday)
- August 24 (Wednesday)
- September 5 (Monday)
- November 24-25 (Thursday-Friday)
- December 6 (Tuesday)
- December 7-8 (Wednesday-Thursday)
- December 9-14 (Friday-Wednesday)
- December 16 (Friday)

Spring Semester 1989
- January 11 (Wednesday)
- January 16 (Monday)
- March 20-24 (Monday-Friday)
- May 1 (Monday)
- May 2-3 (Tuesday-Wednesday)
- May 4-9 (Thursday-Tuesday)
- May 12 (Friday)

Summer Term 1989
- May 17 (Wednesday)
- June 27 (Tuesday)
- June 28 (Wednesday)
- July 4 (Tuesday)
- August 9 (Wednesday)
- August 11 (Friday)

Note: Deadlines for degree requirements on pp. 23-24.
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* DEGREES: MS = Master of Science, PHD = Doctor of Philosophy
  * GEN. SUBJ.: X = Required, Xa = Optional, Xb = Preferred, Xd = Recommended
  * GMAT: 3c = Competency, 3d = Desirable, 3e = Essential
  * LETTERS OR RATING FORMS: 2d = Desirable, 3d = Desirable, 4d = Desirable
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*Non-degree and provisional students must obtain permission from the department/program head to register for courses in these fields.

All documents required for admission are submitted to the Office of Graduate Admissions & Records unless noted otherwise.

a International applicants only.
b American applicants only.
c G.S. Rating Form submitted to Department.
d Forms obtained from & returned to Department.
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Wayne T. Davis, B.S., M.S., Ph.D., Assistant Dean of The Graduate School
Diana C. Lopez, B.S., M.S., Director, Graduate Admissions and Records
Rose Ann Trantham, Assistant Director, Graduate Admissions and Records
S. Kay Reed, B.S., M.S., M.A., Ph.D., Graduate Recruitment Coordinator
Ann L. Lacava, Thesis/Dissertation Coordinator
Richard Roberds, B.S., Ph.D., Associate Dean, UT Space Institute
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Kermit Duckett, College of Human Ecology
Mildred Fenske, College of Nursing

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S. Kay Reed, Graduate Recruitment Coordinator
Ann L. Lacava, Thesis/Dissertation Coordinator

The University of Tennessee, Knoxville, is the official land-grant institution for the State of Tennessee. It is a comprehensive institution offering a wide range of graduate programs leading to the Master’s and doctoral degrees. The University offers Master’s programs in 93 fields and doctoral work in 52. Approximately 5,700 graduate students are enrolled both on and off campus. Administration of graduate student policies and procedures, and associated record keeping, is the responsibility of the Dean of The Graduate School. Much of the day-to-day administration of graduate study is conducted by department heads or faculty advisors and committees responsible for particular programs. In addition to departmental units, numerous interdisciplinary programs, institutes, and centers have been developed on campus and in locations throughout the state.

The Graduate School brings together faculty and graduate students as a community of scholars with a common interest in creative work and advanced study. Programs are available to students desiring work toward the Master’s and doctoral degrees or professional certification, those interested in continuing education for updating and broadening knowledge, and those pursuing postdoctoral research. Traditionally, universities have provided graduate programs primarily for full-time, degree-oriented students. Serving the needs of students engaged full-time in intensive study and pursuit of a degree continues to be a major emphasis of UTK’s graduate effort. At the same time, the University employs a variety of modes, traditional and non-traditional, in offering quality programs designed to serve students.

The policies of The Graduate School are developed by the Graduate Council, a body composed of elected representatives from each college, the Space Institute, and the Graduate Student Association. Ex-officio members include the Dean, Assistant Deans of The Graduate School, the Chair of the Research Council, the Director of Libraries, the Dean of Continuing Education, and the administrative officer having primary responsibility for graduate curriculum in each college or school. The Graduate Office develops procedures to carry out the policies formulated by the Council, and has primary responsibility for Graduate School admissions and records.

Admission and Registration

Admission to The Graduate School requires a Bachelor’s degree with a satisfactory grade point average from a college or university accredited by the appropriate regional accrediting agency. Admission to The Graduate School does not ensure acceptance into a specific degree program nor admission to candidacy for the degree desired.

When a student is admitted to The Graduate School prior to having received the baccalaureate degree, that degree must be awarded before the date of first registration in The Graduate School. If a student does not enroll within one year after the requested admission, the application process must be repeated.

Types of Admissions

To earn graduate credit, a student must be enrolled in one of the categories listed below. Course work taken in any other status is unacceptable for graduate credit and cannot be changed to graduate credit.

ADMISSION TO A GRADUATE DEGREE PROGRAM

Admission to a degree program requires a minimum grade point average of 2.5 out of a possible 4.0, or a 3.0 during the senior year of undergraduate study. However, many departments require a higher average. The equivalent of a minimum B average is required for international students.

The graduate application, a $15 fee, and one (1) official transcript from each institution previously attended are required for consideration as a potential degree candidate.

In addition to meeting the minimum requirements for admission to The Graduate School, applicants at the doctoral level must have demonstrated a potential for superior academic performance. To be considered are such criteria as performance in prior undergraduate and/or graduate studies, achievement on admission tests for graduate studies, letters of recommendation from professors familiar with the applicant’s capabilities, and other evidence of scholarly achievement.

Refer to pages 8-9 and to descriptions of programs for specific requirements for admission.

NON-DEGREE ADMISSION

Applicants may apply for non-degree status who, for example:

1. do not desire to pursue a degree program; or
2. need additional time to fulfill application requirements for a degree program.

There is no specific limit on the number of courses that a student may take in non-degree status. However, before accumulating 15 hours of graduate course work in this status, the student must either:

1. apply and be admitted to a specific degree program (see Change of Program, p. 20, for instructions); or
2. file a Plan of Study form with the Office
Any student admitted to the provisional status who has exceeded six hours of graduate credit must receive permission from The Graduate School to register for a second or succeeding semester if admission to the non-degree or degree status has not been obtained. To be admitted to the non-degree or degree status, the student must earn a 3.0 grade point average in all course work (graduate and undergraduate) taken in provisional status, to include at least six hours of graduate work. Provisional students failing to meet this requirement will be denied registration.

The Office of Graduate Admissions and Records will process the change to non-degree status if all requirements are met. To apply for a specific degree program, the student must submit the Request for Change of Graduate Program form to the Office of Graduate Admissions and Records.

Provisional admission does not assure admission to a non-degree or degree program. A student who hopes to enter a degree program will be directed to the appropriate department.

The student who fails to complete provisional admission within seven weeks after registration will not be permitted to register again nor receive a copy of the transcripts showing the course work taken, until all admission requirements are met.

An international student on a non-immigrant visa may not enroll in the non-degree status.

PROVISIONAL ADMISSION

Applicants may be admitted as provisional students for one semester (or for one course in each of two semesters) who, for example:

1. do not meet the minimum grade point average requirement; or
2. wish to register for graduate courses while meeting any additional requirements for non-degree admission; or
3. desire graduate credit for a limited number of courses (one semester only).

The graduate application, a $15 application fee, and one (1) official transcript from each institution previously attended are required for consideration as a non-degree student. The minimum requirements are a Bachelor's degree with a 2.5 grade point average on a 4.0 scale (or a 3.0 the senior year) from a college or university accredited by the appropriate regional accrediting agency. A major area need not be declared, but some departments do not permit non-degree students to register for graduate courses (see pages 8-9 for information on restricted programs).

Every graduate student must meet with an academic advisor at least once a semester to discuss his/her program. For students with a declared major, the advisor must be from the appropriate academic unit. If no advisor has been assigned, the department head or designee is the advisor. For a non-degree student who has not declared a major, the Assistant Dean of The Graduate School or designee is the advisor. Admission to non-degree status does not assure admission to a degree program. The student who seeks to enter a degree program will be directed to the appropriate department. Students must maintain a 3.0 grade point average to continue enrollment in non-degree status (see Academic Standards). An international student on a non-immigrant visa may not enroll in the non-degree status.

INTERNATIONAL STUDENT ADMISSION

The Graduate School accepts only students who have superior records. An international student must have an equivalent 4-year Bachelor's degree with at least a B average on undergraduate course work and a B+ or better on all previous graduate work. On various grading scales, this would indicate:

a. 3.0 and 3.5 on 4.0 scale;
b. 14 and 15 on 20 point scale;
c. 80.0 from Chinese institutions;
d. 1st Class or Division from Indian institutions;
e. Upper 2nd Class Honors on various British systems.

Other grading systems will be evaluated upon receipt of transcripts. An international student may apply for admission any semester, but normally enters the summer or fall semester. Deadlines for submission of applications are:

Fall: March 1
Spring: July 15
Summer: Nov. 15

The Office of Graduate Admissions and Records must be notified of any change in entering date after admission has been granted. Individual departments and colleges may have further restrictions on admission dates. For this information, students should contact the department whose program they wish to enter.

The following items must be received before admission will be considered:

1. A completed application form with a $15 non-refundable processing fee.
2. Official or attested university records, with certified translations if the records are not in English (Notarized copies are not acceptable).
3. Certification of English proficiency. Every student whose native language is not English must either submit a score of 525 or above on the Test of English as a Foreign Language (TOEFL), taken within the past two years, or have received a degree from an accredited U.S. institution.
4. Documented evidence of financial resources sufficient to support the student as stated on the financial statement form supplied to the applicant.
5. Results of the Graduate Record Examination (GRE) or Graduate Management Admission Test (GMAT), if required. (See pages 8-9.)

Letters of recommendation or rating forms, if required. (See pages 8-9.) Admission must be granted and financial documentation and degree confirmation must be received prior to issuance of an I-20 or IAP-66 form needed to obtain a visa. The Graduate School will not issue these forms after the following dates:

Fall: June 15
Spring: Nov. 15
Summer: March 15

The University will not enroll any student who has not been approved initially or for transfer by the Immigration and Naturalization Services (INS) to attend UT.

An international student may not enroll as a provisional or non-degree student. All students whose native language is not English must take an English proficiency examination after arrival at UT. Refer to section on English Proficiency, page 19.

TRANSIENT GRADUATE STUDENT ADMISSION

A student who has been enrolled in a graduate degree program at another institution and who wishes to transfer courses for transfer to that institution may be admitted after submitting a completed Graduate Application for Admission, the $15 application fee, and a Transient Student Certification 10 days prior to registration. Only one semester, or a maximum of 12 hours, of course work can be taken in transient status. Necessary forms may be obtained from the Office of Graduate Admissions and Records.

ELIGIBILITY OF SENIORS

Subject to approval by The Graduate School, a senior at UT who needs fewer than 30 semester hours to complete the requirements for a Bachelor's degree and has at least a B average (3.0) may enroll in graduate courses for graduate credit provided he combined total of undergraduate and graduate course work does not exceed 15 credit hours per semester. Approval must be obtained each semester at the Office of Graduate Admissions and Records during registration. A maximum of 15 hours of graduate credit can be obtained in this status.

ENROLLMENT OF VETERINARY MEDICINE STUDENTS IN GRADUATE COURSES

A student in good standing in the College of Veterinary Medicine may enroll in UT graduate courses without being admitted to The Graduate School under the following conditions:

1. The student's advisor must approve in advance the student's enrollment in each course.
2. The student may take a maximum of 10 semester hours of graduate courses during the D.V.M. program.
3. Approval must be obtained each
Admission Procedures

Anyone with a Bachelor's degree from a regionally accredited institution wishing to take courses for graduate credit, whether or not the person desires to become a candidate for a degree, must make formal application for admission to The Graduate School or apply for transient status. No action is taken until a file is completed. The applicant will be notified by mail of the action taken.

To apply for admission the following materials must be sent to The Graduate School:

1. The completed Graduate Application for Admission (inside front cover of Graduate Catalog).
2. A $15 non-refundable application fee.
3. One official transcript from all colleges and universities attended.
4. Reference letters or rating forms (pages 8-9). Forms obtained from the college or department should be returned to the same source.
5. Scores from examinations which may be required for admission. Graduate program requirements are shown on pages 8-9. The TOEFL is required of all students whose native language is not English, unless they have graduated from a regionally accredited U.S. Institution.

Application forms for the above tests can be obtained by writing:

Educational Testing Service
Princeton, NJ 08450

UTK is an approved testing center for all examinations. Examination results reach the University in approximately six weeks.

The student who fails to gain admission within seven weeks after registration will NOT be permitted to register again until all admission requirements are met.

All of the above documents become the property of the University and will not be returned. For international graduate student admissions procedures, see International Student Admissions (page 14).

Readmission

A student who has not attended The Graduate School at UTK for more than three semesters (including summer) must apply for readmission. A readmission application should be submitted to the Office of Graduate Admissions and Records at least two weeks prior to the desired reentry date. A student who has attended another institution since enrollment at UTK must submit one official transcript showing all course work and any degrees earned at that institution. The student will be notified when action has been taken by the department/program and The Graduate School. A student who is permitted to enroll and is subsequently denied readmission will receive credit for courses completed successfully. Future registration will not be allowed until readmission is granted.

Registration Procedures

Registration is required of all graduate students when using University facilities and/or faculty time. The minimum number of hours for registration is 3. Registration allows use of services such as library checkout, laboratories, and recreation facilities not open to the public.

Dates of registration are listed in the University Calendar (front of Catalog). To register, students should:

1. Report to the Office of Graduate Admissions and Records to obtain registration materials (scan form and Timetable of Classes).
2. Confer with an advisor assigned by the department to obtain approval of a schedule of courses, if not done previously.
3. Sign the scan form certifying approval of the advisor and return it to the Office of Graduate Admissions and Records or alternate location designated in Timetable.
4. Consult Timetable to complete registration.

Non-degree or provisional students in unrestricted programs (see pages 8-9) may obtain permission to register from the Office of Graduate Admissions and Records. Students in thesis, dissertation, or non-thesis declared major must obtain permission from the department/program head to register for courses in restricted fields.

A preregistration period is scheduled each semester for a subsequent semester (see University Calendar). Any graduate student who has applied for admission can preregister. Information can be obtained from the Office of Graduate Admissions and Records. A late fee of $10.00 is assessed to any student in attendance at the University who fails to preregister for the following semester(s). A student who participates in preregistration should obtain the computerized class schedule and pay fees on the first day of registration.

Failure to pay tuition and fees before the deadline listed each semester in the Timetable of Classes will result in the assessment of a late registration fee. Retroactive registration is not permitted.

Family Educational Rights and Privacy Act

The Family Educational Rights and Privacy Act provides for confidentiality of student records. However, it also provides for basic identification of persons at UTK without the consent of the individual. Release of information to third parties includes directory information such as contained in the campus telephone book and sports brochures. Such information may include name, address, telephone number, date and place of birth, major, dates of attendance, degrees and awards, the most recent previous educational agency or institution attended, participation in school activities and sports, and weight and height (for special activities).

Notice of the categories to be contained in a publication will be given in advance. A period of one week is provided during which a student may request that such information not be released.

Student Identification Number

UTK requires assignment of an individual student number for internal identification of each student's record. The University began using the social security number as the student identification number prior to 1 January 1975; therefore, federal law allows continuation use of this number. However, if a student does not desire to use the social security number, notification to the University must be made at the time of application for admission. A student identification number will then be assigned instead. For prompt and accurate retrieval of records and for conducting business about their own records, students and alumni must give their student identification number. Student identification numbers, whether social security numbers or assigned numbers, are used administratively within the University only and are not given to third parties without expressed consent of the student.

Fees, Residency Classification, and Financial Aid

University Fees

University fees are determined by the Board of Trustees and are subject to change without notice. The general fees in effect for graduate students are as follows:

APPLICATION FEE....................................................$15

Each graduate application for admission must be accompanied by a non-refundable fee of $15 before it will be processed (fee not required if: (1) former UTK graduate student; or (2) previously paid to UTK Graduate School within past 12 months).

If a student applies but does not enter graduate school within twelve months after date of requested admission, the fee will be destroyed and it will be necessary to resubmit the $15 application fee and a new application. This fee is not refundable.

MAINTENANCE FEE (in-state students).....................................................$755

TUITION (out-of-state students).....................................................$2,057

NOTE: In lieu of the above charge for tuition...
and/or maintenance fee, part-time students may elect to pay fees computed by the semester hour credit (or audit) as follows:

- **In-State:** $110 per semester hour or fraction thereof; minimum charge $330.
- **Out-of-State:** $239 per semester hour or fraction thereof; minimum charge $717.

**UNIVERSITY PROGRAMS AND SERVICES FEE**

**PER SEMESTER**

$98

This fee for the summer semester is $78. Part-time students taking fewer than nine semester hours will be assessed at the rate of $6 per semester hour or fraction thereof; minimum charge $12.

Graduate, teaching, and research assistants, teaching associates, and fellowship students, who may have waiver of fees (tuition and/or maintenance), must pay the appropriate University Programs and Services Fee.

Knoxville campus students taking a course load of 6-8 hours may elect to pay the full programs and services fee.

Knoxville campus day students taking a course load of 3-8 hours may elect to pay the student health fee, plus the appropriate part-time programs and services fee. The student health fee is included in the full $98 programs and services fee.

The University programs and services fee is not refundable.

**LATE REGISTRATION FEE**

All students are required to have a validated fee receipt to complete the registration procedure. This includes students whose fees are billed, prepaid, or waived. Students who do not complete registration on the regular dates scheduled for this purpose will be charged a late registration fee of $2 up to $70. See the University Undergraduate Catalog for application of this fee. Doctoral students who must register retroactively for dissertation credit will be charged a late fee of $35 for each semester of retroactive registration. The payment of fees with a check which is not honored by the bank will incur a service charge of $10 to $45, depending on the bank.

**MUSIC FEE**

- One-half hour lesson per week per semester $45
- One-hour lesson per week per semester $90

Payable at registration by students receiving individual instruction in music.

**GRADUATION FEE**

- Master's degree candidates $30
- Doctoral degree candidates $70
- Doctoral hood (optional) $5

There are no additional charges for diploma, binding, or microfilming. The graduation fee is nonrefundable and is valid for two semesters after the semester in which it is paid.

**PROFICIENCY FEES**

Fees for proficiency examinations are $22 per credit hour for graduate students. See page 19 for other information on proficiency examinations.

**TUITION PAYMENT PLANS**

All student fees are due in advance and should be paid in full at registration each semester.

**Prepayment Plan**

A prepayment plan has been developed to assist students with planning and budgeting their academic year expenses. Under the plan, students may choose the expenses they wish to prepay including room, board, tuition, and fees. Expenses can be prepaid over a period of eight months. Students and/or parents wishing to participate in the pre-payment plan should contact the Bursar's Office for details.

**Deferred Payment Policy**

Although fees, rent, and University expenses are due and payable at the beginning of each semester, a full-time student in good financial standing with the University may request a deferment of up to 30% of the total charges for a period of up to four weeks from the first day of registration. All financial aid monies must be applied to fees before a deferment will be considered. For more details, contact the Bursar's Office.

**GRADUATION FEE**

Students who must register retroactively for dissertation credit will be charged a late fee of $35 per semester.

**SUMMER SEMESTER FEES AND EXPENSES**

Fees and expenses for the summer semester are the same as for other semesters during the academic year with the exception of the University programs and services fees as noted above.

Although the summer semester is divided into terms of varying lengths, tuition and fees are assessed at the regular semester-hour rate up to the maximum charge for a complete regular semester.

The refund policy covering withdrawals and dropped courses for the summer semester is based on the length of the term for the course(s) dropped. No refund is applicable to term courses dropped later than 14 calendar days after the regular registration day for the course(s) involved.

**WAIVER OF FEES**

Graduate assistants, teaching assistants and associates, research assistants, and others whose fees are billed, prepaid, waived, or partially waived must complete their registration with the Bursar's Office, where they should have their fee receipts validated and supply necessary details concerning fee payment waiver. Fee receipts must be validated before classes begin to avoid late registration fees.

**NOTE:** All fees are subject to change. All charges and refunds will be made to the nearest dollar. All charges are subject to subsequent audit and verification. The Uni-
Financial Aid

UTK offers several types of financial assistance for which graduate students may apply.

ASSISTANTSHIPS AND FELLOWSHIPS
Graduate assistantships, scholarships, and traineeships are offered through many departments. Information concerning these types of assistance can be obtained from the department in which the student plans to study.

The Hilton A. Smith Graduate Fellowships and The National Alumni Association Graduate Fellowships for full-time study at UTK are awarded on the basis of scholarly performance as evidenced by grades and faculty recommendations. Candidates from any field of study are invited to apply if they have a 3.6 grade point average or above in all previous academic work. The fellowships include monthly stipends, tuition, and maintenance fees. Application packets are available from the Office of Graduate Admissions and Records in November. Completed applications, including all supporting materials, must be submitted to the Residency Clerk in the Office of Graduate Admissions and Records. The award decisions are announced by March 15.

EMPLOYMENT
Three sources of student employment are coordinated by the Financial Aid Office: (1) Federal work-study programs provide part-time jobs for U.S. citizens or permanent residents who have demonstrated financial need by the Federal Aid Form (FAF) or Family Financial Statement (FFS); (2) The College Work-Study Program provides part-time jobs for U.S. citizens or permanent residents; (3) The Federal Work-Study Program provides part-time jobs for U.S. citizens or permanent residents. The award decisions are announced by March 15.

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are welcome to drop in at their convenience. Problems are treated confidentially and are dealt with expeditiously. The office does not replace the student's faculty advisor to ensure their responsiveness to student needs.

General Regulations of The Graduate School

Advisor/Major Professor
Every graduate student must have an advisor from the major department. This professor advises the student about course selection, supervises the student's research, and facilitates communication within the major department, to other departments and to The Graduate School. The advisor must approve the student's program each semester. Many schools assign a temporary advisor to direct the entering student's work during the period in which the student is becoming acquainted with the institution and determining the focus of research interests, and in which the department is forming a judgment concerning the candidate's promise as a scholar. As early as appropriate the student requests a professor in the major department to serve as the advisor. The major professor and student together select a graduate committee.

Prerequisites
Graduate work in any program must be preceded by sufficient undergraduate work in the major and related areas to satisfy the department, so that the student can do graduate work successfully in the chosen field. Individual undergraduate records are examined and evaluated by the appropriate department before admission to a degree program. Questions about program prerequisites should be addressed to the advisor.

Course Listings
Each course listing in the Graduate Catalog contains information in abbreviated form. The course number indicates the level at which the course is taught. All 500-600 level courses are graduate courses. The 400 level courses are upper division courses available for graduate credit only if listed in the Graduate Catalog. To receive graduate credit for these, a student must so indicate on the registration material.

The official course title appears following the course number. Numbers in parentheses following the course title indicate the semester hours credit. If the credit is variable, to be determined in consultation with the instructor, the minimum and maximum are shown (e.g. 2-3). Day-time hours are followed by a course description indicating the content to be covered.

Prerequisite courses must be taken prior to the course in question. Corequisite courses may be taken prior to or concurrently with the specific course. Recommended prerequisites should be taken previously but are not mandatory.

Some courses may be repeated for a maximum number of hours allowable towards a degree program. This number is stated for each repeatable course in the exception of Thesis 500, Dissertation 600, and Registration for Use of Facilities 502. Courses may be cross-listed with two or more departments, an arrangement indicated by a parenthetical statement (Same as Psychology 543). The course description is given only under the primary department.

'S/NS/NC only' indicates that the course may be taken only for Satisfactory/No Credit grading. Refer to section on Grading System. A symbol indicating the semester or frequency that the course is normally offered is included at the end of many course descriptions.

Courses offered:
F-Fall
S-Spring
E-Every semester
A-Alternate years
Su-Summer

These codes are indicated only for Knoxville campus classes and are subject to change without notice. The Timetable of Classes, published several weeks prior to each semester, is the official notification of courses offered for a specific semester. Students should contact the appropriate department/program head concerning courses to be offered in future semesters.

Course Loads
The maximum load for a graduate student is 15 hours, and 9 to 12 hours is considered a full load. Students receiving financial aid should consult with the department/program head concerning appropriate course loads. Courses audited do not count toward minimum graduate hours required for financial assistance. Registration for more than 15 hours during any semester is not permissible without prior approval of The Graduate School, which may allow registration of up to 18 hours if the student has achieved a cumulative grade point average of 3.6 or better in at least nine hours of graduate work with no outstanding incompletes. Students may enroll in only one course during a mini-term session.

Change of Registration
The permanent record will show all courses for which the student has registered except those audited and those from which the student has withdrawn during the first ten consecutive instructional days after the beginning of classes.

Students who fail to attend the first class meeting without prior arrangement with the department MAY BE DROPPED from the course to make space available to other students. Students have the responsibility to assure that they have been dropped. Otherwise they may receive a grade of F in the course.

The deadline for change of registration (e.g. from graduate to undergraduate, undergraduate to graduate, withdrawal) is approximately 35 calendar days after the first day of classes each semester. (See Graduate School News each term for exact date.) A student may change registration for...
a course at any time prior to and including this date by executing a change of registration form and submitting it to the Office of Graduate Admissions and Records. The student must sign the form certifying approval of the advisor. The instructor's signature is required if the course is closed and/or after the first two weeks of classes. If the student withdraws from a course or from the University after the first ten instructional days of classes and before the change of registration deadline, he/she will receive a grade of W on the permanent record.

Course registration may not be changed from credit to audit after the first ten consecutive instructional days after the beginning of classes.

After the change of registration deadline, a student withdrawing from a course or from the University will receive a grade of F unless it can be demonstrated that the request for withdrawal is based on circumstances beyond the student's control. In the latter case, a grade of W will be entered on the permanent record.

To change registration in any way after the deadline, a student must present the request, together with documentary evidence of extenuating circumstances, to the Office of Graduate Admissions and Records. In addition, the student must complete a change of registration form and questionnaire signed by the instructor(s) and advisor as evidence of their knowledge of the request. If the request is approved, the Office of Graduate Admissions and Records will notify the Office of Admissions and Records to enter the change on the student's permanent record.

Grading System

A cumulative grade point average of 3.0 is required on all graduate course work taken at UTK to receive any graduate degree from the University. Grades in The Graduate School have the following meanings:

A (4 quality points per semester hour), superior performance.
B+ (3.5 quality points per semester hour), better than satisfactory performance.
B (3 quality points per semester hour), satisfactory performance.
C+ (2.5 quality points per semester hour), less than satisfactory performance.
C (2 quality points per semester hour), performance well below the standard expected of graduate students.
D (1 quality point per semester hour), clearly unsatisfactory performance and cannot be used to satisfy degree requirements.
F (no quality points), extremely unsatisfactory performance and cannot be used to satisfy degree requirements.
I (no quality points), a temporary grade indicating that the student has performed satisfactorily in the course but, due to unforeseen circumstances, has been unable to finish all requirements. An I is not given to enable a student to do additional work to raise a deficient grade. All incompletes must be removed within one semester, excluding the summer semester. If a supplementary grade report has not been received in the Office of Graduate Admissions and Records at the end of the semester, the I will be changed to an F. The course will not be counted in the cumulative grade average until a final grade is assigned.

No student may graduate with an I on the record.

S/NC (carries credit hours, but no quality points). S is equivalent to a grade of B or better, and NC means no credit earned. Courses where NC is received may be repeated for a grade of S. A grade of S/NC is allowed only where indicated in the course description in the Graduate Catalog. The number of S/NC courses in a student's program is limited to one-fourth of the total credit hours required.

P/NP (carries credit hours, but no quality points). P indicates progress toward completion of a thesis or dissertation. NP indicates no progress or inadequate progress.

W (carries no credit hours or quality points), indicates that the student withdrew from the course.

No graduate student may repeat a course for the purpose of raising a grade already received, with the exception of NC. A graduate student may not do additional work to raise a final grade.

Proficiency Examinations

A proficiency examination may be given in academic courses offered for graduate credit. Applications for proficiency examinations are available in the Office of the Registrar, 209 Student Services Building. To be eligible, a student must be admitted to The Graduate School. The request for examination must be approved by the head of the department offering the course. A student applying for this privilege must present evidence to the department head that they have the knowledge and abilities expected of graduate students who have taken the same course. Upon passing the examination with a minimum grade of B, the student will receive graduate credit. A maximum of one-fourth of the total credit hours in a Master's degree program may be earned by this method, subject to the approval of the student's graduate committee. A fee of $22 per credit hour must be paid before each examination. Proficiency examinations may not be used to raise the grade of a course previously completed, nor may such an examination be repeated. Proficiency examinations taken at other institutions are not transferable.

English Proficiency

Any student whose native language is not English must present a TOEFL score of at least 525 unless he/she has received a Bachelor's or Master's degree from an accredited institution in the United States. Some departments require a higher minimum TOEFL score. The student must also pass an English proficiency examination given by the University prior to initial registration. Students whose performance on the examination indicates a need for additional English study must enroll immediately for English 121—English Grammar Review for Foreign Students (or another course assigned by the English Department) for undergraduate credit and pass with a grade of C or better. A student may not take more than 6 additional hours of course work while enrolled in English 121. Those students whose scores indicate that they are not prepared to enter English 121 will be referred to a program of intensive English study prior to taking the course.

Persons whose native language is not English must pass an oral test in English (the SPEAK Test) before they can be assigned to classroom duties in connection with their assistantships. The SPEAK Test is administered on campus by the Learning Research Center. Scores from the Test of Spoken English (TSE) are also accepted in place of the SPEAK Test.

Law Courses

A graduate student may take up to 6 semester hours of law courses and apply toward a graduate degree upon approval of the College of Law and the student's major professor. The graduate student must register for law courses during the registration period at the College of Law and request an S/NC grade. If the student earns a 2.0 or better, an S will be recorded on the transcript. Below 2.0, an NC will be recorded and the course cannot be used toward meeting degree requirements.

Grades for law courses will not be reflected in the cumulative grade point average as law courses do not carry graduate credit.

Different rules apply to students enrolled in the Dual J.D.-MBA program. Grades must be earned according to the grading system of the respective colleges, e.g. numerical grades for law courses, letter grades for graduate courses. Refer to page 55 for grades acceptable to meet degree requirements. Only one cumulative GPA (law or graduate) will be carried on the student's transcript until graduation, at which time both the graduate and law cumulative will be added to the permanent record.

A student enrolled in the Ph.D. in Business Administration program may use 8 semester hours or more of law courses for the supporting area under the arrangement described on page 55.

Auditors and Audited Courses

Persons who wish to attend certain classes regularly, without taking examinations or receiving grades or credit, may do so by completing a graduate application, paying the application fee, registering as an auditor, and paying regular fees. Graduate students paying regular fees also are entitled to audit courses.

The names of all auditors properly registered will appear on the intermediate class rolls, but will be removed from the final grade report. No record of audited course work will appear on the permanent record.
Correspondence Study

No graduate credit is accepted at UTK for work done by correspondence study at any university.

Transfer Credits

Official transcripts must be sent directly to the Office of Graduate Admissions and Records from all institutions previously attended before any transfer of credit will be considered. Credit be transferred into a graduate program at UTK, a course must:

1. be taken for graduate credit;
2. carry a grade of B or better;
3. be a part of a graduate program in which the student had a B average; and
4. have been completed within the six-year period prior to receipt of the degree. They will be placed on the student's UTK transcript only after the Office of Graduate Admissions and Records has approved the course taken at another institution.

A transfer credit may be contingent upon a review and approval. If the student is not accepted into the program requested, the credit will not be placed on the student's UTK transcript.

The results of each request for program change are communicated to the student by mail.

Residence Requirements

Residence is defined as full-time registration for a given semester on the campus where the program is located. The summer semester is included in this period.

Master's degree: no general Graduate School residence requirement.

Ed.S. degree: one semester of residence if the student has a Master's degree; two consecutive semesters of residence if the student lacks a Master's degree.

Doctoral degree: minimum of two consecutive semesters of residence. Individual doctoral programs may have additional residence requirements.

Theses and Dissertations

All theses and dissertations are submitted to The Graduate School Thesis/Dissertation Consultant for examination. The Thesis/Dissertation Consultant will review the material and assure that it is attractively presented, free of technical errors in format, suitable for binding, and reflects credit upon the University and The Graduate School. If the thesis or dissertation is not accepted, the student must make corrections and resubmit the materials.

The student and major professor together share responsibility for the accuracy and professionalism of the final product of the student's research. The student should confer with the Thesis/Dissertation Consultant regarding problems and questions in advance of preparing the final copy. The UTK Guide to the Preparation of Theses and Dissertations contains the correct format for theses or dissertations. Workshops are held periodically throughout the academic year. The date for each workshop is announced in the Graduate School News. The thesis should be written in English.

Under exceptional circumstances, however, another language may be used if prior approval is obtained from The Graduate School.

Theses and dissertations are considered complete when the student requests and receives approval from the Office of Graduate Admissions and Records.

Academic Standards

Graduate education requires continuous evaluation of the student. This evaluation includes not only periodic objective evaluations, such as the cumulative grade point average, performance on comprehensive examinations and acceptance of the thesis or dissertation, but also judgments by the faculty of the student's progress and potential. Continuation in a program is determined by the faculty and the head of the academic unit.

The academic records of all graduate students are reviewed at the end of each semester, including the summer term. Graduate students must maintain a cumulative grade point average (GPA) of at least 3.0 on all graduate courses taken for a letter grade of A-F. Grades of S/NC, P/NP, and I, which have no numerical equivalent, are excluded from this computation. These policies do not apply to provisional students (see section on provisional admission).

ACADEMIC PROBATION

Upon completion of nine hours of graduate course work, a graduate student will be placed on academic probation when his/her cumulative GPA falls below 3.0. A student will be allowed to continue in graduate studies for subsequent semesters if each semester's grade point average is 3.0 or greater. Upon achieving a cumulative GPA of 3.0, the student will be removed from probationary status.

DISMISSAL

If a student is on academic probation, the degree or non-degree status will be terminated by The Graduate School if the student's semester GPA falls below a 3.0 (required for graduation) in a subsequent semester. When the particular circumstances may be deemed to justify continuation, and upon recommendation of the appropriate academic unit and approval of The Graduate School, a student on probation whose semester GPA is below 3.0 may be allowed to continue on a semester-by-semester basis.

Dismissal of a graduate student by a department or program is accomplished by written notice to the student, with a copy to The Graduate School. In those cases where the department's requirements for continuation are more stringent than Graduate School requirements, The Graduate School will evaluate the student's record to determine whether the student is eligible to apply for a change of status and register in another area of study. Registration for courses in a department from which a student has been dismissed will not be permitted, except by written authorization from the department.

Departments and programs may have requirements for continuation or graduation in addition to the minimum requirements set forth in this Catalog by The Graduate School. It is the student's responsibility to be familiar with the special requirements of the department or program.

Appeals Procedure

The student handbook, Hill Topics, published and distributed annually, contains instructions for appeal procedures.
statements of UTK standards of conduct and of all disciplinary regulations and procedures. Normally, grievances should be handled at the departmental level through the student's advisor or the department or program head. Further appeal may be made to the Dean of The Graduate School, the Graduate Council, and the Chancellor. The By-Laws of the University (Article V, section 7) provide that any individual may ultimately appeal to the Board of Trustees, through the President. A copy of the Appeals Procedure is available in the Office of Graduate Admissions and Records.

Requirements for Advanced Degrees

Master's Degrees

Master's degree programs are available with thesis and non-thesis options. These programs require 30 or more graduate hours of course work in the major subject. In addition to the M.A. and M.S. degrees, a number of other degrees are offered, including the MBA, and the M.S.S.W. A complete list is found under "Majors and Degree Programs," on pages 8-9. For specific degree requirements, consult individual program descriptions listed by college and field of instruction in this Catalog. See also the chart, page 23, for a summary of procedures for the degrees.

COURSE REQUIREMENTS

A candidate for a Master's degree must complete a minimum of 30 hours of graduate credit in courses approved by the student's Master's committee. In thesis programs, a minimum of 6 semester hours of credit in the major must be earned in course 500 while the student is preparing the thesis. Hours applied to the Master's degree may be entirely from one major subject or may be distributed to include one or two minor areas. In a 30-hour program, the major subject must include at least 12 semester hours of graduate course work, exclusive of course 500, and a minor must include not fewer than 6 nor more than 12 hours of graduate credit.

At least two-thirds of the minimally required hours in a Master's degree program must be taken in courses numbered at or above the 500 level. Only 6 thesis hours can be counted toward this requirement.

MASTER'S COMMITTEE

A committee composed of the major professor and at least two faculty members at the rank of assistant professor or above should be formed as early as possible in a student's program, and must be formed by the time a student applies for admission to candidacy (refer to Advisor/Major Professor, page 18). The responsibility of this committee is to assist the student in planning a course of study and carrying out research, and to and direct the student's program of course work, supervising and judging it to be satisfactory.

ADMISSION TO CANDIDACY

Application for admission to candidacy for the Master's degree is made as soon as possible after the student has completed any required prerequisite courses and nine hours of graduate course work with a 3.0 average or higher in all graduate work. The student must submit the Admission to Candidacy form, with appropriate signatures, to the Office of Graduate Admissions and Records no later than commencement day of the semester preceding the semester in which he/she plans to graduate.

Thesis Registration

A student must be registered for course 500 each semester during work on the thesis, including a minimum of 3 hours the semester in which the thesis is accepted by The Graduate School. At least 6 hours of course 500 are required for the thesis option. After receiving the Master's degree, a student is no longer permitted to register for Thesis 500.

Final Examination for Thesis and Problems in Lieu of Thesis Students

A candidate presenting a thesis or problems must pass a final oral (or oral and written) examination on all work offered for the degree. The examination, which is concerned with course work and the thesis or problems, measures the candidate's ability to integrate material in the major and related fields, including the work presented in the thesis or problems. This examination, scheduled through the Office of Graduate Admissions and Records, must be held at least three weeks before the final date for approval and acceptance of thesis by The Graduate School. Final examinations not properly scheduled must be repeated. The final draft of the thesis must be distributed to all committee members at least two weeks prior to the date of the final examination. In case of failure, the candidate may not apply for reexamination until the following semester. The result of the second examination is final.

Thesis

The thesis represents the culmination of an original research project completed by the student. It must be prepared according to the UTK Guide to the Preparation of Theses and Dissertations. Two copies of the thesis must be approved and accepted by The Graduate School on or before the deadline specified each semester in the Graduate School News. Each copy must include an approval sheet, signed by the members of the Master's committee, certifying that they have examined the final copy of the thesis and judged it to be satisfactory.

Registration for Use of Facilities

Students using University facilities or faculty time must be registered for course 502 if not registered for other courses.

Final Examination for Non-Thesis Students

With the exception of students pursuing the MBA, each non-thesis student must pass a final written examination. A department may require an additional oral examination. The examination is not merely a test over course work, but a measure of the student's ability to integrate material in the major and related fields. It must be scheduled through the Office of Graduate Admissions and Records in accordance with the deadlines specified in the Graduate School News and will be conducted by the Master's committee. Final examinations not properly scheduled must be repeated. Students taking the final examination but not otherwise using University facilities may pay a fee of $146 instead of registering. In case of failure, the candidate may not apply for reexamination until the following semester. The result of the second examination is final.

Time Limit

Candidates have six calendar years from the time of enrollment in The Graduate School to complete the degree. Students who change degree programs during this six-year period may be granted an extension after review and approval by The Graduate School. In any event, courses used toward a Master's degree must have been taken within six calendar years of graduation.

Specialist in Education Degree

The Specialist in Education (Ed.S.) degree is offered with majors in Curriculum and Instruction, Educational Administration and Supervision, Educational Psychology and Guidance, Safety Education and Service, and Vocational-Technical Education. Admission to the Ed.S. program requires acceptance by The Graduate School, and review and acceptance by the department or area in which the student is majoring. It is recommended that students who apply for the Ed.S. have at least one year of related work experience. Additional information on admission requirements can be obtained from the departments offering the degree. Also see the chart, page 23, for a summary of procedures for this degree. All deadlines are published each semester in the Graduate School News.

Ed.S. Committee

A committee of at least three faculty members is assigned to each student. A minimum of two members of this committee must represent the department or major area. Its responsibilities include guiding the student's program of course work, supervising progress, recommending admission to candidacy, directing research, and coordinating the qualifying and final examinations.

Course Requirements

The student's program involves a minimum of four semesters of study totaling not fewer than 60 semester hours of graduate credit beyond the baccalaureate degree. A minimum of 6 hours is required outside the major department or area. A student admitted to the program with a Master's degree, or with acceptable work beyond the Master's degree, may have program requirements modified upon recommendation of the student's committee. However, no modifications will be permitted in examination or reexamination requirements, nor in the minimum 6 graduate hours required outside the major. All prior course work accepted toward the degree must be related to the student's program objectives. A maximum of 6 hours beyond the Master's degree may be transferred from another institution to an Ed.S. program. See Transfer Credits, page 20.
Courses numbered at the 400 level required for certification through UT may not be taken for graduate credit and used as part of the course work in the major. At least one-half of the last 30 semester hours of work, exclusive of thesis courses, must be in 500- or 600-level courses.

**ADMISSION TO CANDIDACY**

The Admission to Candidacy form, signed by the student's committee, is submitted to the Office of Graduate Admissions and Records before the student has completed 15 hours of course work in the Ed.S. program. A qualifying examination may be required for Admission to Candidacy if the student has a Master's degree earned six years or more prior to admission to the program. This examination may be written and/or oral.

**RESEARCH REQUIREMENTS**

See the program descriptions of individual departments for listings of thesis, problems in lieu of thesis, and non-thesis options. Some departments offer only a thesis program.

1. In the non-thesis program, a candidate will study research methods and findings and will demonstrate skill in adapting them to professional needs as defined by the major department.

2. In the thesis program, or problems in lieu of thesis, 6 hours of research credit (518 and 519) must be earned in the preparation of an acceptable piece of work. The student must continue to register for thesis or problems while working on the project, including the semester it is accepted by The Graduate School. The thesis must be prepared according to instructions in the *UTK Guide to the Preparation of Theses and Dissertations,* and approved by the student's committee prior to submission to The Graduate School for final approval and acceptance.

**FINAL EXAMINATION**

A candidate presenting a thesis, or problems in lieu of thesis, must pass an oral examination covering the student's research and program of study. A non-thesis student must pass a final written, or oral examination on all work offered for the degree. The examination is not merely a test over course work, but a demonstration of the candidate's ability to integrate materials in the major and related fields. Each examination must be scheduled through the Office of Graduate Admissions and Records before the deadline and will be conducted by the student's committee. Final examinations not properly scheduled must be repeated. In case of failure, the candidate may not be reexaminined until the following semester. The result of the second examination is final.

**TIME LIMIT**

Candidates have six calendar years from the time of entry into the last 30 hours of their degree programs to complete the Ed.S. degree.

### Doctoral Degrees

Two doctoral degree programs are available: Doctor of Philosophy (Ph.D.) and Doctor of Education (Ed.D.). Programs are listed under "Majors and Degree Programs,"

### Diagnostic Examination

A student on admission to the doctoral program may be given a written and/or oral diagnostic examination to help determine the student's level of preparation, areas of strengths and weaknesses, and general background. The diagnostic examination is designed to aid in the selection of courses and to determine the student's preparation to continue doctoral studies at UTK.

### Qualifying Examination

A written and/or oral qualifying examination may be given near the end of the student's first year in the doctoral program. Qualifying examinations are designed to test the student's progress, general knowledge of fundamentals of the field, and fitness to continue with the more specialized aspects of the doctoral program.

### Comprehensive Examination

The comprehensive examination (or the final part of this examination, when parts are given at different times) is normally taken when the doctoral student has completed all or nearly all prescribed courses. Thus, its successful completion indicates that, in the judgement of the faculty, the doctoral student can think analytically and creatively, has a comprehensive knowledge of the field, and the student is capable of completing the dissertation. The comprehensive examination must be passed prior to admission to candidacy. A written examination is required and an oral examination is encouraged.

The faculty of the graduate program and/or the student's doctoral committee will determine the content, nature and timing of the comprehensive examination and certify its successful completion. The department or committee may at its discretion subdivide the examination, administering portions of the examination at several times during the student's course of study. Students should review carefully the written statement from each doctoral degree program which details the timing, areas covered, grading procedures, and provisions for repeating a failed examination.

### Defense of Dissertation Examination

A doctoral candidate must pass an oral examination on the dissertation. The defense of dissertation will be administered by all members of the doctoral committee after completion of the dissertation and all course requirements. This examination must be passed at least three weeks before the date of acceptance and approval of the dissertation by The Graduate School. The examination must be scheduled through the Graduate Admissions and Records Office. Final examinations not properly scheduled must be repeated. The dissertation, in the form approved by the major professor, must be distributed to the committee at least two weeks before the examination. The examination is announced publicly and is open to all faculty members.

### LANGUAGE REQUIREMENTS

Candidates for the Ph.D. degree may be required to demonstrate a reading knowledge of at least one foreign language in which there exists a significant body of liter-
## Requirements for Advanced Degrees in the Graduate School

A student is required to take a language examination. Language requirements must be met at UTK and cannot be transferred from another institution. The doctoral committee will determine the specific language (or languages) required. Language requirements must be met at UTK and cannot be transferred from another institution. When the student is prepared to take a language examination, he/she should complete an Application for Doctoral Language Examination at the Office of Graduate Admissions and Records in accordance with the dates and times for the examinations printed in the Graduate School News. Satisfactory completion (grade of B or better) of German 332 or French 302 may be substituted for a language examination.

### Admissions to Candidacy

A student may be admitted to candidacy for the doctoral degree after passing the comprehensive examination, fulfilling any language requirements (for Ph.D.), and maintaining at least a B average in all graduate course work. Admission to candidacy must be applied for and approved at least one full semester prior to the date the degree is to be conferred. Each student is responsible for filing the admission to candidacy form, which must be signed by the doctoral committee and approved by The Graduate School.

### Dissertation

The dissertation represents the culmination of an original major research project completed by the student. The organization,

### Summary of Procedures for Master's and Specialists in Education Degrees


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<th>PROCEDURES</th>
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<tbody>
<tr>
<td>Admission as a potential degree candidate</td>
<td>Office of Graduate Admissions and Records and Major Department</td>
<td>Prior to completing 15 hours of graduate courses</td>
</tr>
<tr>
<td>Formation of Master's/Ed.S. committee</td>
<td>Advisor/Major professor</td>
<td>Prior to application for admission to candidacy</td>
</tr>
<tr>
<td>Submission of application for admission to candidacy</td>
<td>Master's/Ed.S. committee</td>
<td>At least one semester prior to graduation*</td>
</tr>
<tr>
<td>Approval of admission to candidacy</td>
<td>The Graduate School</td>
<td>Prior to graduation</td>
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### Graduation Requirements for Non-Thesis Option

- Placement of name on graduation list: Student
- Application for diploma: Office of Graduate Admissions and Records
- Payment of graduation fee: Bursar’s Office
- Scheduling of Final Examination: Student and Office of Graduate Admissions and Records
- Final Examination(s): Master's/Ed.S. committee
- Removal of incomplete(s): Instructor of course

### Graduation Requirements for Thesis/Problems Options

- Placement of name on graduation list: Student
- Application for diploma: Office of Graduate Admissions and Records
- Payment of graduation fee: Bursar’s Office
- Submission of thesis/problems to Master’s/Ed.S. committee: Student
- Scheduling of Final Examination: Student and Office of Graduate Admissions and Records
- Final Examination(s): Master's/Ed.S. committee
- Approval and acceptance of final copy of thesis and thesis card: Master's/Ed.S. committee and The Graduate School
- Removal of incomplete(s): Instructor of course

*Deadlines are printed in the Graduate School News each semester.*
24 The Graduate School/Requirements for Advanced Degrees

method of presentation, and subject matter of the dissertation are important in conveying to others the results of such research. A student should be registered for the number of dissertation hours representing the fraction of effort devoted to this phase of the candidate's program. Thus, a student working full time on the dissertation should register for 12 hours of 600 per semester.

Two copies of the dissertation (prepared according to the regulations in the UTK Guide to the Preparation of Theses and Dissertations) must be submitted to and accepted by The Graduate School. Each copy must include an approval sheet, signed by all members of the doctoral committee, which certifies to The Graduate School that they have examined the final copy and found that its form and content demonstrate scholarly excellence. Doctoral forms and a thesis card are also submitted at this time. The student should check with the department head concerning additional required copies of the dissertation.

**TIME LIMIT**

Comprehensive examinations must be taken within five years, and all requirements must be completed within eight years, from the time of a student's first enrollment in a doctoral degree program.

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### Summary of Procedures for Doctoral Degrees

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<th>PROCEDURES</th>
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<tbody>
<tr>
<td>Admission as a potential degree candidate</td>
<td>Office of Graduate Admissions and Records and Major Department</td>
<td>Prior to completing 15 hours of graduate courses</td>
</tr>
<tr>
<td><em>Appointment of doctoral committee</em></td>
<td>The Graduate School on recommendation of department head</td>
<td>Preferably during the first year of graduate study but, at the latest, prior to admission to candidacy</td>
</tr>
<tr>
<td><em>Comprehensive Examination</em></td>
<td>Major department</td>
<td>Prior to admission to candidacy</td>
</tr>
<tr>
<td><em>Foreign language examination(s)</em></td>
<td>Office of Graduate Admissions and Records</td>
<td>Prior to admission to candidacy</td>
</tr>
<tr>
<td>Submission and approval of application for admission to candidacy</td>
<td>Doctoral committee and The Graduate School</td>
<td>At least one semester prior to graduation***</td>
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### GRADUATION REQUIREMENTS

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<th>PROCEDURE</th>
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<tr>
<td>Placement of name on graduation list</td>
<td>Student</td>
<td>Indicate on registration materials</td>
</tr>
<tr>
<td>Application for diploma</td>
<td>Office of Graduate Admissions and Records</td>
<td>Deadline available at registration***</td>
</tr>
<tr>
<td>Payment of graduation fee</td>
<td>Bursar's Office</td>
<td>Deadline available at registration***</td>
</tr>
<tr>
<td>Submission of dissertation to doctoral committee</td>
<td>Student</td>
<td>At least two weeks prior to Defense of Dissertation Examination***</td>
</tr>
<tr>
<td>Scheduling of Defense of Dissertation Examination</td>
<td>Student and Office of Graduate Admissions and Records</td>
<td>Not later than one week prior to Defense of Dissertation Examination***</td>
</tr>
<tr>
<td>Defense of Dissertation Examination</td>
<td>Doctoral committee</td>
<td>Not later than three weeks prior to dissertation deadline***</td>
</tr>
<tr>
<td>Approval and acceptance of final copy of dissertation, doctoral forms, and dissertation card</td>
<td>Doctoral committee and The Graduate School</td>
<td>After Defense of Dissertation Examination and not later than two weeks prior to commencement***</td>
</tr>
<tr>
<td>Removal of incomplete(s)</td>
<td>Instructor of course</td>
<td>Not later than one week prior to commencement***</td>
</tr>
</tbody>
</table>

* The order of these items varies with individual programs.
** Not required in some programs.
*** Deadlines are printed in the Graduate School News each semester.
COLLEGES
College of Agriculture

O. Glen Hall, Dean
Gary Schneider, Associate Dean

Departments
Agricultural and Extension Education
Agricultural Economics and Rural Sociology
Agricultural Engineering
Animal Science
Entomology and Plant Pathology
Food Technology and Science
Forestry, Wildlife and Fisheries
Ornamental Horticulture and Landscape Design
Plant and Soil Science

Facilities for Research and Service
Institute of Agriculture
Agricultural Experiment Station
Agricultural Extension Service

Graduate programs of the College of Agriculture are designed to prepare men and women for positions of leadership in industry, state and federal government, teaching, research, and extension.

The graduate student is expected to demonstrate a thorough knowledge of the subject matter in his/her specialized field of study and its relationship to the sociological, economic, and environmental impact on society. The student must demonstrate the ability to plan, conduct, analyze, and report original research. More importantly, emphasis is given to intellectual growth and to the development of scholarly habits of study, reasoning and analysis to the end that the graduate will continue to grow and develop professionally throughout his/her career.

The general rules of The Graduate School apply to all graduate work in the College.

College of Business Administration

C. Warren Neel, Dean
John R. Moore, Associate Dean
Roger L. Jenkins, Associate Dean for Graduate Programs
Richard C. Reizenstein, Associate Dean for Undergraduate Programs
Clyde Keller, Associate Dean for External Affairs
David A. Hake, Director, Center for Business and Economic Research
John E. Riblett, Director, Management Development Programs

Departments
Accounting and Business Law
Economics
Finance
Management
Management Science
Marketing
Statistics

Facilities for Research and Service
Center for Business and Economic Research
Management Development Center
MBA Center of Excellence in New Venture Analysis and Entrepreneurship

Graduate programs of the College of Business Administration are designed to prepare men and women to assume positions in the increasingly complex world of business and industry, teaching and research, and government.

Viewing the business firm as operating in dynamic social, political, and economic environments that demand leaders capable of dealing with innovation and rapid change, the College places central importance on development of students' thought processes. Emphasis is focused on flexibility of mind, receptivity to new ideas, and capacity to adapt one's reasoning powers. Our objective is to encourage the student to develop the ability to reason analytically and logically.

Above all else, we strive to instill the irrepressible desire to continue to learn and grow in knowledge throughout the student's life.

CENTER OF EXCELLENCE

The Tennessee Higher Education Commission (THEC) has designated a Center of Excellence for New Venture Analysis and Entrepreneurship within UTK's College of Business Administration. The primary goals and benefits of the center are threefold: to coordinate the resources needed to provide an MBA concentration in new venture analysis and entrepreneurship, to provide a centralized entity in the college for quality research in the field of new ventures, and to provide support and development programs for existing new ventures. Information on the
first of these goals, the MBA concentration, is located under Business Administration. Information on the two latter goals may be obtained by contacting the Center for New Venture Analysis at 608 Stokely Management Center, Knoxville, TN 37996-0563 or by calling (615) 974-1739.

GRADUATE PROGRAMS
The College of Business Administration offers programs leading to five advanced degrees: the Doctor of Philosophy with majors in Business Administration, Economics, and Management Science; the Master of Accounting with a major in Economics; the Master of Science with a major in Statistics; the Master of Accountancy; and the Master of Business Administration. The Department of Management and the Department of Psychology in the College of Liberal Arts jointly offer an intercollegiate program in Industrial and Organizational Psychology leading to the Master of Science and Doctor of Philosophy. (See Industrial and Organizational Psychology.) Also, the Department of Management Science coordinates an intercollegiate program leading to the Master of Science. (See Management Science.)

The two College-wide programs, the MBA and the Ph.D. in Business Administration, are described in Business Administration, Fields of Instruction. Descriptions of other degree programs are under the appropriate departmental or program headings.

ACADEMIC COMMON MARKET
An agreement among southern states for sharing graduate programs allows legal residents of some states to enroll in certain programs at UTK on an in-state tuition basis. Programs in the College of Business Administration available to residents of the states indicated include: Ph.D. (Business Administration) West Virginia; MBA (Transportation and Logistics) Virginia and West Virginia; M.S. and Ph.D. (Industrial and Organizational Psychology) Alabama, South Carolina, and Virginia. Additional information may be obtained from the Graduate Programs Office of this college.

ADMISSION REQUIREMENTS
General admission requirements for The Graduate School are stated beginning on page 13. M.Acc., MBA, and Ph.D. in Business Administration applicants are required to take the Graduate Management Admission Test (GMAT). Applicants for programs in economics, industrial/organizational psychology, management science, and statistics may submit results of either the GMAT or the Graduate Record Examination (GRE) general portion. Applicants for management science and statistics programs must have completed at least two years of college-level calculus and be proficient in a computer language. Applicants whose native language is other than English must submit results of the Test of English as a Foreign Language (TOEFL). Scheduled dates and locations for taking these examinations may be obtained from Educational Testing Service, P.O. Box 966, Princeton, New Jersey 08540, and from most colleges and universities.

In addition to the above, required for admission to The Graduate School, M.Acc., MBA, and Ph.D. in Business Administration applicants must submit additional information on forms provided by the College of Business Administration. For specific application deadlines, refer to individual program requirements under Fields of Instruction. The College of Business Administration is fully accredited by the American Assembly of Collegiate Schools of Business and is associated with other leading graduate schools of business as a member of the Graduate Management Admission Council.

ACADEMIC STANDARDS
A graduate student in the College of Business Administration whose grade point average at any point is below 3.0 will be placed on probation. A student on probation will be dropped from the program unless his/her cumulative grade point average is 3.0 or higher at the end of the probationary period. The probationary period is defined as the next semester's course work as established by the degree program for full-time students and the next two semesters' course work as established by the degree program for part-time students.

FELLOWSHIPS AND ASSISTANTSHIPS
Fellowships
Information concerning nonservice fellowships administered by The Graduate School as well as application blanks may be obtained from the Office of Graduate Admissions and Records. Information on College-administered fellowships is available from the Office of Graduate Business Programs in the College of Business Administration.

Assistantships
A limited number of teaching and other assistantships that require from 10 to 20 hours of service per week are available through the departments of the College. Remuneration includes remission of fees and tuition as well as a monthly stipend. Awards are generally made on the basis of scholarship and performance on the appropriate (GMAT or GRE) admission test. Application forms may be obtained in any of the departments or from the office of the Associate Dean for Graduate Programs. Applications must be received by March 1 for consideration of assistantships and fellowships to be awarded for the following fall term.

College of Communications

B. Kelly Leiter, Dean
Herbert H. Howard, Assistant Dean for Graduate Studies and Research
Paul G. Ashdown, Assistant Dean for Undergraduate Studies

Departments and Schools
Advertising
Broadcasting
Journalism

Facility for Research and Service
Communications Research Center (CRC)

The College of Communications offers the Master of Science and the Doctor of Philosophy with a major in Communications. In addition, Communications is available as a minor for students majoring in other departments. Required course work will be selected after discussion with the major advisor and an advisor from the College of Communications.

The M.S. program is accredited by the Accrediting Council on Education in Journalism and Mass Communication. The College is a member of the Association of Schools of Journalism and Mass Communication and the Broadcast Education Association.

The doctoral program in Communications is listed in the Academic Common Market of the Southern Regional Education Board. Students residing in Alabama, Arkansas, South Carolina, Virginia, and West Virginia can normally qualify for in-state fee status by applying to the Academic Common Market coordinators in their state capitals.

For application forms and other information about the M.S. and Ph.D. programs in Communications, write to:
Assistant Dean for Graduate Studies
College of Communications
98 Communications Building
The University of Tennessee
Knoxville, TN 37996-0313

ADMISSION REQUIREMENTS
Applicants must meet admission requirements of The Graduate School. In addition, they must complete the Graduate Record Examination and application forms as required by the College of Communications. Minimal requirements for admission to full potential candidate status normally include a 3.0 (4.0 system) grade point average in undergraduate studies and scores above the fiftieth percentile in verbal and quantitative aptitude on the Graduate Record Examination. All application materials are screened by an admissions committee authorized by the faculty of the College of Communications.

New students normally are admitted to the program only at the beginning of fall semester. However, under special circumstances, a student may be admitted at the beginning of spring semester in a temporary non-degree status. Applications for fall admission must be received by May 1.

A baccalaureate degree in communications or a related field is recommended. Admission is possible with other baccalaureate degrees; however, all applicants without the appropriate background are required to take up to 18 semester hours of prerequisite and requisite courses as determined by the department in which the student is enrolled. Students may take a proficiency test on any prerequisite course, subject to review by the Master's Committee of the College of Communications.

Students who have had no courses in their major area of concentration may expect to spend four or more full-time semesters in the program, including a media internship.

ACADEMIC STANDARDS
A student in the College of Communications whose graduate grade point average, not including incomplete grades, is below 3.0 at any time after the end of 12 hours of graduate credit will be placed on probation. A student on probation will be dropped from the program unless his or her cumulative graduate grade point average is 3.0 or higher at the end of the probationary period.
College of Education
Richard W. Wisniewski, Dean
C. Glennon Rowell, Associate Dean for Graduate Studies
Thomas W. George, Associate Dean for Undergraduate Studies
Timothy J. Pettibone, Associate Dean for Research

Departments
- Art and Music Education
- Curriculum and Instruction
- Educational and Counseling Psychology
- Educational Leadership
- Health, Leisure, and Safety
- Physical Education and Dance
- Special Services Education
- Technological and Adult Education

Facilities for Research and Service
- Bureau of Educational Research and Service
- Center for Physical Activity and Health
- Institute for Teacher Education
- Mid Atlantic/Appalachian Race Desegregation Center
- Reading Center
- Safety Center

The faculty of the College of Education is committed to performing three major functions: (1) to provide professional preparation for teachers, administrators, school service personnel, and other professionals such as health and recreation personnel at the undergraduate and graduate levels; (2) to collaborate with school personnel, educational agencies, and others interested in the evaluation and improvement of educational opportunities, programs, and services; and (3) to promote and conduct research and development in education and other areas of responsibility.

The College of Education holds membership in the American Association of Colleges for Teacher Education. All certification and degree programs through the doctoral level are fully accredited by the National Council for Accreditation of Teacher Education, the Southern Association of Colleges and Schools, and the Tennessee State Department of Education.

The College of Education, through The Graduate School, offers programs leading to the Master of Science, the Specialist in Education, the Doctor of Education, and the Doctor of Philosophy.

TEACHER CERTIFICATION
Applicants for initial teacher certification and those applicants previously certified who are seeking initial institutional recommendation for certification must gain admission to the college's Teacher Education Program. A complete explanation of the admission process appears in the Undergraduate Catalog.

MASTER OF SCIENCE PROGRAM
On the Master's level, professional study may be planned (1) in one of the areas listed on page 8-9, (2) in appropriate combinations of these areas, or (3) in combinations of one or more of these areas with appropriate subjects or areas in other colleges. Students in the College of Education’s five-year preparatory program must meet all criteria for admission to The Graduate School in order to earn 12 hours credit toward their Master’s degrees. Admission to Graduate School must be prior to or during the semester that the first graduate credit is to be earned. Internship cannot be used for graduate credit.

SPECIALIST IN EDUCATION PROGRAM
This degree may be earned in Educational Administration and Supervision, in Educational Psychology and Guidance, in Curriculum and Instruction, in Safety Education and Service, or in Vocational-Technical Education.

DOCTORAL PROGRAMS
The College of Education offers programs of advanced study leading to the Doctor of Education in the major areas listed on page 8-9. Ph.D. in Education requirements are available under Education, Fields of Instruction.

College of Engineering
William T. Snyder, Dean
William L. Grecco, Associate Dean
Andrew W. Spickard, Associate Dean

Departments
- Chemical Engineering
- Civil Engineering
- Electrical and Computer Engineering
- Engineering Science and Mechanics
- Industrial Engineering
- Materials Science and Engineering
- Mechanical and Aerospace Engineering
- Nuclear Engineering

Facilities for Research and Service
- Center for Computer Integrated Engineering and Manufacturing
- Center for Measurement and Control Engineering
- Center of Excellence for Materials Processing

Graduate degree programs of the College of Engineering provide opportunities for advanced study leading to the Master of Science, the Master of Engineering, and the Doctor of Philosophy. For a listing, consult majors and degrees available on page 8-9.

GRADUATE PROGRAM AT THE UT SPACE INSTITUTE
At the University of Tennessee Space Institute near Tullahoma, graduate-level courses are offered in engineering fields such as aerospace, chemical, electrical and computer, engineering science, industrial, mechanical engineering, engineering management, and mathematics and physics. All programs lead to the Master of Science. Also, Ph.D. degrees are available in many of these fields. Information may be obtained from the Registrar, The University of Tennessee Space Institute, Tullahoma, TN 37388.

YEAR-IN-JAPAN M.S. PROGRAM
This is a unique program allowing American engineering students to develop some understanding, both scientific and cultural, of Japan. It allows an M.S. candidate to obtain a degree from UTK while carrying out research at a Japanese university. The program requires approximately two years; one year is spent in Japan and the remaining period is spent at UTK to fulfill the course requirements and transfer of research results or project report, as appropriate to the particular department. The program is administered in the framework of each department's regular graduate program except that the research is done in Japan.

CENTER OF EXCELLENCE FOR MATERIALS PROCESSING
The Center for Materials Processing is one of the 'Centers of Excellence' created by the State of Tennessee. It is an interdisciplinary program designed to bring together individuals with appropriate expertise to solve important materials processing problems. It emphasizes (1) the development of desirable materials properties through the control of composition, molecular structure and microstructure, (2) measurement of process variables, and (3) control of those variables to ensure proper processing. The Center conducts basic research and teaching in materials processing and carries out research to improve existing processing technologies and transfer of research results to private industry. A major aspect of the Center is student participation in industry-sponsored research programs.

College of Human Ecology
Jacquelyn O. DeJonge, Acting Dean
Kermit Duckett, Associate Dean of Graduate Studies

Departments
- Child and Family Studies
- Nutrition and Food Sciences
- Textiles, Merchandising and Design

Graduate study in Human Ecology prepares the student for teaching, research, and public service in colleges and universities or managerial positions in government, business, and industry. The Master of Science is offered with majors in Child and Family Studies, Home Economics, Interior Design, Food Science, Food Systems Administration, Nutrition (including public health nutrition), and Textiles and Apparel; the Doctor of Philosophy is offered with a major in Human Ecology and concentrations in child development, family studies, food science, nutrition science, and textiles and apparel. For addi-
nutional information, contact the Associate Dean of Graduate Studies, College of Human Ecology, The University of Tennessee, Knoxville, TN 37996-1900, (615) 974-5224.

ADMISSION REQUIREMENTS
A completed file for review includes a College of Human Ecology application, Graduate Record Examination (GRE) scores for the general section, and completion of three Graduate School Rating Forms by individuals who can attest to the potential for graduate education. Forms may be obtained from the Dean's office. Interior design students are required to submit a portfolio of their undergraduate or graduate work consisting of 15-20 slides which represent their best creative accomplishments from a studio experience. The M.S. in Home Economics requires an undergraduate degree in Home Economics.

ACADEMIC COMMON MARKET
The ACM is an interstate agreement among southern states for sharing academic programs. If you are a resident of one of the participating states and qualify for admission, you may enroll in certain programs on an in-state tuition basis. Potential doctoral students in Human Ecology who are residents of Alabama, Arkansas, Kentucky, Louisiana, Mississippi, South Carolina, Virginia, or West Virginia are eligible. Students planning to enter the Master's program in Foods Systems Administration who are residents of Arkansas, Georgia, Kentucky, South Carolina, and Virginia; and students entering Interior Design who are residents of Louisiana are also eligible for in-state tuition.

College of Law
Marilyn Yarbrough, Dean
John A. Sebert, Associate Dean
Julia P. Hardin, Associate Dean
Patrick Hardin, Associate Dean
Mary Jo Nover, Associate Dean
N. Douglas Wells, Assistant Dean

Current information regarding admission, financial aid, course requirements, academic policies, extracurricular activities, and student services is available in the College of Law Bulletin from the Admissions Office, The University of Tennessee, College of Law, 1505 West Cumberland Avenue, Knoxville, Tennessee 37996. Completed application should be received before February 1 of the year of requested admission.

The University of Tennessee College of Law commenced operation in 1890 and has continuously sought to provide high-quality legal education in a university community. While the principal objective of the college is to prepare students for the private practice of law, its total mission is more broadly conceived. The college exposes students to the legal issues of our society enabling them to develop analytical skills with respect to decisional law and statutes, the ability to communicate effectively their knowledge of the law, an awareness of the historical growth of the law, a knowledgeable appreciation of the interrelationship of law and society, and the ability to use law as an implement of societal control and development. Students are thus equipped to serve their community not only as advocates and counselors, but as policy makers and active, responsible citizens.

The coordinated program of the college has three dimensions: teaching and learning, research into and analysis of our legal systems and institutions, and service to the community. Each plays a significant role in the college as a modern law center.

The teaching and learning element of legal education at the college involves a cooperative classroom interaction between faculty and students in the analytical study of a host of questions and problems found in today's legal profession. These involve decisional law, statutory interpretation, administrative regulation, techniques of trial and appellate advocacy, and the roles and responsibilities of the lawyer in advising and representing clients. While proper consideration is given to the problems of Tennessee law, the course of study is conducted with a view toward providing an awareness and understanding of the regional and national perspective in order to prepare our students for service in any state.

The college is also directly involved in providing service to the community of which it is a part. A major element of public service is centered in the Legal Clinic where students, under the guidance of skilled and experienced licensed practitioners, provide legal services to clients. Additionally, through research, consultation, and other services to legal institutions and groups within the state, the college seeks to participate in the development and improvement of the society in which its students may eventually practice law. The Public Law Institute is a primary example of this function.

In combination, the direction and objectives of the college lead to the development of a narrow technician, but of a student of the law with the perspective, breadth, and understanding necessary to accomplish the many tasks assigned by society to the legal profession.

THE COLLEGE OF LAW BUILDING
Since 1950 the college has occupied a building especially designed for teaching, study, and research in the law. In the spring of 1971 the college occupied the new wing, doubling the available facilities. The library, the classrooms, and the offices are air-conditioned. Classrooms, courtrooms, seminar rooms, offices for full-time faculty members, the offices of the Legal Clinic, and a Law Library are contained in the building.

LEGAL CLINIC
The University of Tennessee Legal Clinic was established in 1947. Though the Legal Clinic provides legal assistance to indigent persons, it is designed primarily as a teaching device to correlate theory and practice. It introduces the student, under faculty supervision, to the law in practice through personal contact with clients and their problems. The Legal Clinic functions as a large law office in which the student gains experience in interviewing clients, writing legal letters, investigating and evaluating facts, preparing memoranda of law, preparing cases for trial or adjustment, and briefing cases. Classroom work supplements the handling of actual cases. The student is thus trained in the technique of law practice and the management of a law office. The ethical responsibilities of lawyers and their function as public servants are stressed. Under present rules of the Tennessee Supreme Court, third year students, under the direct supervision of the Legal Clinic staff, are certified to practice before all the courts of Tennessee.

THE LAW LIBRARY
The Law Library contains the official state reports of all states, the complete National Reporter system that covers all states and the federal courts, the Annotated Reports, standard sets of miscellaneous reports, the reports of the Canadian cases and of English cases from the yearbooks to date. In addition to these, there are adequate encyclopedias, digests and dictionaries, standard textbooks, law reviews, and current loose-leaf services, totaling more than 260,000 catalogued volumes and microform volume equivalents. The library is under the supervision of a law librarian who is trained in law and library science. Law students also have the use of the collections in the University Main Library, a few blocks away, and other branch libraries.

College of Liberal Arts
Lorman A. Ratner, Dean
Charles O. Jackson, Associate Dean
Harry Jacobson, Associate Dean
Harry Y. McSween, Associate Dean
Mary P. Richards, Associate Dean

Departments

Anthropology
Art
Audiology and Speech Pathology
Biochemistry
Botany
Chemistry
Classics
Computer Science
Cultural Studies
English
Geography
Geological Sciences
Germanic and Slavic Languages
History
Mathematics
Microbiology
Music
Philosophy
Physics and Astronomy
Political Science
Psychology
Religious Studies
Romance Languages
Sociology
Speech Communications
Theatre
Zoology

Facilities for Research and Service
Center for Theatre Excellence
Heating and Speech Center
Institute for Applied Microbiology
James R. Stokely Institute for Liberal Arts Education
Joint Institute for Heavy Ion Research
Program for Quaternary Studies of the Southeastern U.S.
The College of Liberal Arts offers programs leading to seven advanced degrees. See page 8-9 for degrees and majors.

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 provides for 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 done 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.

College of Medicine-Knoxville Unit
Robert L. Summit, Dean
Reid I. Collmann, Associate Dean

Department
Medical Biology

The major campus of the College of Medicine is located in Memphis, Tennessee. The college, however, is a statewide organization with other units in Chattanooga, Jackson, and Knoxville.

In addition to the Department of Medical Biology listed here, the Knoxville Unit has several clinical departments with faculty dedicated to graduate and postgraduate medical education.

The College of Medicine traces its origin to the establishment of the Medical Department of the University of Nashville in 1851. Later, through a merger of four medical schools, it became the University of Tennessee College of Medicine and moved to Memphis in 1911.

GRADUATE PROGRAMS
The faculty with the College of Veterinary Medicine participates in the graduate program leading to M.S. and Ph.D. degrees in Comparative and Experimental Medicine. Other advanced degree students can do thesis research in the department by arrangement with other life science departments at the University.

College of Nursing
Sylvia E. Hart, Dean
Barbara M. Reid, Associate Dean for Student Affairs

Faculty for Research and Service
Center for Nursing Research

MASTER OF SCIENCE IN NURSING
The College of Nursing offers a Master of Science in Nursing program. The general purpose of the program is to prepare nurses at the graduate level to function as clinical specialists, teachers, or managers in a variety of health care or educational settings. The program is accredited by the National League for Nursing and is unconditionally approved by the Tennessee Board of Nursing. Students admitted to the program will be selected on the basis of academic performance, work experience, and potential for leadership. More specific information about the program may be obtained on page 122 or by contacting:

Mary Agnes Goodman, Coordinator
The University of Tennessee College of Nursing
1200 Volunteer Blvd., Knoxville, TN 37996-4110
(615) 974-4151

College of Social Work
Ben P. Granger, Dean
Lou M. Beasley, Associate Dean, Nashville
Roger M. Nooe, Associate Dean, Knoxville
Nellie P. Tate, Associate Dean, Memphis
Paul M. Campbell, Director, Office of Social Work Research and Public Service

The University of Tennessee College of Social Work is the only graduate professional social work education program in Tennessee with degrees offered at both the Master's and doctoral levels. The college serves the state through campus locations in Knoxville, Nashville, and Memphis.

GRADUATE PROGRAMS
The two-year program (thesis or non-thesis option) leading to the Master of Science in Social Work is fully accredited by the Council on Social Work Education and is offered on all three campuses. The foundation curriculum of the Ph.D. program is available only in Knoxville. A dual degree program in Social Work and Divinity is offered by the college's Nashville Branch and the Divinity School of Vanderbilt University. A special bulletin describing the facilities, admission, fees, and degree requirements is obtainable from the College of Social Work, Henson Hall, Knoxville, TN 37996-3333.

College of Veterinary Medicine
Hyram Kitchen, Dean
Charles F. Reed, Jr., Associate Dean
William H. Grau, Jr., Associate Dean

Departments
Animal Science-Veterinary Medicine
Environmental Practice
Microbiology-Veterinary Medicine
Pathobiology
Rural Practice
Urban Practice

The College of Veterinary Medicine, established in 1974, offers a professional curriculum leading to the Doctor of Veterinary Medicine (D.V.M.). The college offers graduate studies leading to the Master of Science and the Doctor of Philosophy. Residency training programs in the various clinical specialties are also offered. The college is organized into six academic departments: Animal Science (jointly with the College of Agriculture), Environmental Practice, Microbiology (jointly with the College of Liberal Arts), Pathobiology, Rural Practice, and Urban Practice.

The primary objective of the college is to educate veterinarians for private practice. However, the professional curriculum provides an excellent basic medical education, in addition to training in diagnosis, disease prevention, medical treatment, and surgery. Graduates are qualified to pursue careers in many facets of veterinary medicine and related health professions.

Most veterinarians are engaged in private practice. The majority of these are in general practices which deal with the diseases of all kinds of animals. About one-fourth of the veterinarians in the United States are engaged exclusively in pet or companion animal practice. A growing number are concerned with the health problems of zoo animals, laboratory animals, wildlife, and aquatic species.

Veterinarians also find rewarding careers in the U.S. Public Health Service, the U.S. Army and Air Force, and in state, county, or local health agencies. A large number of veterinarians are employed by the U.S. Department of Agriculture and by state departments of agriculture for important work in livestock disease control, meat and poultry inspection, serum and vaccine production, and the protection of our country against the importation of foreign animal diseases.
Excellent opportunities exist for veterinarians interested in research, both for the direct benefit of animals and research conducted with animals but for the benefit of humans. Such opportunities are available at colleges and universities and with governmental agencies, private research institutions, and biological and pharmaceutical companies.

COLLEGE FACILITIES
Administrative offices of the College of Veterinary Medicine are located in Morgan Hall on the agricultural campus. The Department of Animal Science is housed in Brehm Animal Science Building, also on the agricultural campus, and the Department of Microbiology is located in Walters Life Sciences Building on "The Hill" of The University of Tennessee, Knoxville.

The Veterinary Medicine Building on the agricultural campus houses the departments of Environmental Practice, Rural Practice, Urban Practice, and Pathobiology. Additional facilities include the Veterinary Teaching Hospital, clinics, and the Agriculture/Veterinary Medicine Library are contained within this modern structure of 246,000 gross square feet.

The college has research facilities on Cherokee Farm adjacent to the UT Hospital. Satellite teaching-research facilities are located in Middle and West Tennessee.

ADMISSION REQUIREMENTS
Admission to the professional program of the College of Veterinary Medicine is limited to that number for which an education of high quality can be provided with the resources available to the College.

To qualify for admission, a candidate must have completed at least the minimum pre-veterinary requirements as listed.

<table>
<thead>
<tr>
<th>Subject Area</th>
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<tr>
<td>English</td>
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<tr>
<td>Humanities and Social Sciences*</td>
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<tr>
<td>Mathematics</td>
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<tr>
<td>Physics</td>
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<td>General Chemistry</td>
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<td>Biochemistry**</td>
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<td>General Biology</td>
<td>8</td>
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<tr>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>Cellular Biology***</td>
<td>3</td>
</tr>
</tbody>
</table>

Total 72

*May include, for example, courses in English literature, speech, music, art, philosophy, religion, language, history, economics, anthropology, political science, psychology, sociology and geography.

**Exclusive of laboratory.

***It is expected that this requirement will be fulfilled by a course in cellular or molecular biology. An appropriate microbiology course may be approved if cellular or molecular biology is not offered.

ADMISSION PROCEDURES
Admission of new students will be for the fall semester each year. Applicants will be considered in the following order of priority:
1. residents of Tennessee,
2. residents of other states.

Forms and instructions for making application for admission may be obtained, after September 1 each year, from:
Director of Admissions
201 Student Services Building
The University of Tennessee
Knoxville, TN 37996-0200

Applications must be completed and mailed in time to reach the UTK Director of Admissions by January 15 each year. All supporting documents, official transcripts, Veterinary College Admission Test (VCAT) (formerly VAT) (results from a test taken with 24 months of the January 15 application deadline date), and letters of reference must be submitted to arrive not later than 30 days after the application deadline date. NON-TENNESSEE APPLICANTS MUST HAVE A MINIMUM CUMULATIVE GRADE POINT AVERAGE OF 3.2 ON A 4.0 SCALE. Applications are accepted only from U.S. citizens or permanent residents of the U.S.

EXTRAMURAL PROGRAMS
The opportunity to participate in off-campus learning experiences may be available for a limited number of students during the latter half of the final year of the professional curriculum. Selection of an extramural learning experience requires approval by the department concerned and the College of Veterinary Medicine Curriculum Committee. The extramural program identified by the student must represent a learning experience not available within The University of Tennessee, Knoxville.
FIELDS OF INSTRUCTION
Fields of Instruction

Accounting and Business Law
(College of Business Administration)

MAJORS DEGREES
Accounting .................................................. M.Acc.
Business Administration .................. M.B.A., Ph.D.

Jan R. Williams, Head

Accounting

Professors:
N. E. Dittrich, Ph.D. Ohio State, C.P.A.;
J. E. Kiger (Distinguished Professor of Accounting), Ph.D. Missouri, C.P.A.;
W. H. Read (Emeritus), MBA Northwestern, C.P.A.;
J. H. Scheiner, Ph.D. Ohio State, C.P.A.;
W. H. Read (Emeritus), MBA Northwestern, C.P.A.;
K. G. Stanga, Ph.D. Louisiana State, C.P.A.;
J. R. Williams (Ernst and Whinney Professor), Ph.D. Arkansas, C.P.A.

Associate Professors:
H. C. Herring, III, Ph.D. Alabama, C.P.A.;
C. D. Izard, Ph.D. Mississippi, C.P.A.;
I. A. Posey, M.S. Tennessee, C.P.A., C.M.A.;
J. M. Reeve, Ph.D. Oklahoma State, C.P.A.;
H. P. Roth, Ph.D. Virginia Polytechnic Institute, C.P.A., C.M.A;
W. L. Slagle, M.S. Tennessee, C.P.A.;
R. L. Townsend, Ph.D. Texas, C.P.A.

Assistant Professors:
K. E. Anderson, Ph.D. Indiana, C.P.A.;
A. F. Borthick, D.B.A. Tennessee, C.M.A.
C.I.S.A.; M. C. Letsinger, M.S. Tennessee, C.P.A.;
R. A. Turpen, Ph.D. Alabama, C.P.A.

Distinguished Lecturer:
S. B. Wolfe, B.S. Virginia Polytechnic Institute.

THE MASTER OF ACCOUNTANCY PROGRAM

The objective of the Master of Accountancy (M.Acc.) program is to provide persons having an undergraduate accounting background and a high level of ability and motivation with the depth and understanding of accounting which will enhance their probability of success in a career in professional accounting. Moreover, the student's educational experience should develop perspective toward the discipline of accounting in a manner that will enable the student to spearhead innovation and change in response to needs in public accounting, business, industry, or government.

Foundation Requirements

Application deadlines for international students are: Fall, March 1; Spring, July 15; Summer, November 15. Application deadlines for U.S. citizens and permanent residents are: Fall, June 1; Spring, October 1; Summer, February 1. Although the program is designed for students who have completed an accredited baccalaureate degree program with a major in Accounting, those with outstanding undergraduate records in any area may earn the M.Acc. degree by completing prerequisites in accounting and by including courses in other business and related disciplines to supplement the applicant's undergraduate background. Students entering the program are expected to have completed course work in calculus and computer science. For students with no previous exposure to calculus, Mathematics 305 is available.

Course Requirements for the M.Acc. Program

A student's program encompasses a minimum of 30 semester hours of graduate course work. Specifically, the student must complete courses in accounting and other areas as indicated below. Each course is 3 semester hours of graduate credit.

Accounting Core (9 hours): 511, 513, 521.

Accounting Concentration (12 hours):

1. Financial Auditing: 512, 531, 519, one accounting elective.
3. Taxation: 531, 532, 533, 539.

Non-accounting Electives (9 hours): Non-accounting courses taken in either other business or non-business areas, upon approval of M.Acc. advisor.

Transfer Credits

A maximum of six semester hours taken at other AACSB accredited institutions that otherwise conform to University policy (page 20) may be credited toward M.Acc. degree requirements.

Other Requirements

To qualify for the degree, a student must maintain a B average (3.0) or above in the core and concentration area accounting courses and a B average or higher in the overall program. The student must satisfactorily demonstrate his/her ability to recognize, analyze, and solve accounting policy problems and integrate concepts from the various areas of accounting by passing a comprehensive written examination. This examination is included in the capstone courses in each concentration as follows: 519, Research in Financial Accounting and Auditing; 539, Tax Policy and Special Topics; and 549, Systems Policy.

BUSINESS ADMINISTRATION CONCENTRATIONS

For complete listing of MBA and Ph.D. program requirements, see Business Administration.

MBA Concentration

Controllership: The concentration in controllership provides added accounting skills appropriate for those seeking employment in the controllership or general management functions of a variety of organizations. Although the controllership concentration provides broad preparation for the Certified Management Accountants examination, it is not designed to meet the minimum educational requirements to take the Certified Public Accountants' examination.
Minimum Course Requirements for MBA Concentration: 504, 505, 522, 541.

Ph.D. in Business Administration Concentration

1. This degree provides a research-oriented terminal qualification for those seeking entry-level faculty positions at universities in accounting education and research. Students take approximately three years of courses beyond the bachelor’s degree, including a doctoral sequence designed to expose students to various areas of accounting research. Courses in accounting and other areas are selected to supplement the student’s individual background and to prepare the student in an area of accounting specialization (financial, managerial, auditing, tax or systems). The final year is normally spent completing the doctoral dissertation.

Minimum Course Requirements for Ph.D. Concentration: 12 hours including 611, 612, 619, and one other accounting course to be approved by Ph.D. (accounting) program advisor.


502 Registration for Use of Facilities (3-15) 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. S/NC only. E

503 Managerial Accounting (3) Concepts and analyses relevant to internal decision-oriented users of accounting information for planning, decision making, controlling, and product costing. Prereq: 501


505 Taxation for Business Decisions (4) Conceptual foundation and analysis of current issues in taxation; impact on use and management of financial and investment information applied to individual, corporate, partnership, and fiduciary taxpayers. Prereq: 504 and Finance 501.


513 Seminar in Advanced Auditing (3) Theory and concepts underlying application of philosophy of auditing to current auditing issues. Prereq: 411.

519 Seminar in Accounting and Auditing Research (3) Problem-oriented research design in financial accounting and auditing. Research methodologies and approaches to particular research questions. Research project. Prereq or coreq: 512 and 513.

521 Seminar in Advanced Managerial Cost Accounting (3) Concepts, theories, analysis of conceptual and current issues; impact on development and practice of managerial and cost accounting. Approaches to management accounting, decision and control models, and planning and control under conditions of uncertainty. Prereq: 321.

522 Budgetary Planning and Control Systems (3) Alternative approaches to formulation and use of planning and control systems to meet organizational objectives. Control systems and corporate structure, discretionary expense centers, profit centers, transfer pricing, and control in manufacturing, service, and not-for-profit organizations. Prereq: 321 or 503.

531 Tax Research and Planning (3) Development of expertise in tax research utilizing authoritative sources of tax law and advanced study of tax alternatives available to minimize tax liability compatible with achieving taxpayer objectives. Prereq: 431.

532 Corporate Taxation and Reorganizations (3) Organization and structure, distributions, liquidations, reorganizations, and special problems in taxation of corporations and shareholders. Prereq or coreq: 531.

533 Taxation of Partnerships and S Corporations (3) Formation, operation, termination, and other special problems of partnerships. Election for S Corporation, and comparison of partnerships and S Corporations. Prereq or coreq: 531.

534 Unified Estate and Gift Transfer Taxation (3) Taxation of wealth transfers; transfers at death, inter vivos transfers, and generation skipping transfers. Income taxation of estates and trusts. Determination and payment of state and federal wealth transfer and income taxes. Prereq: 431.

539 Tax Policy and Special Topics (3) Basic concepts of tax policy, current issues in tax policy, and selected topics in taxation. Topics vary. Prereq: 531. Prereq or coreq: 532, 533.

541 Database Systems (3) Design, implementation, and use of database systems for collection, organization, and distribution of economic information about organization. Prereq: 312 or 501; 321 or 503; 341 or Business Administration 506.

542 Systems Analysis and Design (3) Analysis and design of information systems for management and distribution of economic information about organizations. Prereq: 541.

549 Systems Policy (3) Seminar in emerging topics in management systems and knowledge-based systems. Prereq: 541. Prereq or coreq: 542.

594 Graduate Seminar in Accounting (3) Full-time resident professional employment for one academic semester involving qualified job experience, written report of responsibilities, and evaluation of student performance. Prereq: Consent of instructor.

593 Individual Research in Accounting (3) Directed research in topic of mutual interest. Prereq: Consent of M.Acc program advisor. May be repeated. Maximum 6 hrs.

594 Graduate Seminar in Accounting (3) Topics vary. Prereq: Consent of instructor.

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

611-12 Doctoral Seminar in Accounting (3,3) Analysis of issues reflected in accounting literature. Prereq: Consent of Ph.D. program advisor.

619 Doctoral Research in Accounting (3) Study of research methodology and application of various research methods in accounting literature. Prereq: Consent of Ph.D. program advisor.

621-22 Accounting Colloquium (1,1) Research and discussion of contemporary issues in practice of accounting. Prereq: Consent of Ph.D. program advisor. May be repeated. S/NC only.

Business Law

Professors:

Associate Professor:
C. S. Massingale, MBA, J.D., Tennessee.

501 Legal, Ethical, and Societal Environment (3) Legal/ethical environment: recognized schools of jurisprudence (legal ethics), sources of law, anatomy of civil and criminal lawsuits; how regulations are made and enforced; constitutional rights and duties of business; antitrust law; Federal Trade Commission; product liability; consumer protection; employer-employee relations; securities regulation, environmental law, and international business law.

Advertising

(College of Communications)

MAJOR

Communications ........................................... M.S.

Ronald E. Taylor, Head

Associate Professors:
D. Jackson, M.S. Tennessee; R. E. Taylor, Ph.D. Illinois.

Assistant Professors:
R. Howland, Ph.D. Illinois; M. J. Stankey, Ph.D. Illinois.

Instructor:
D. Kerr, M.A. North Carolina.

The Department of Advertising offers a concentration area for the Master's with a major in Communications. See Communications for additional information.
**Aerospace Engineering**  
See Mechanical and Aerospace Engineering

**Agricultural and Extension Education**  
(College of Agriculture)

**MAJOR**  
Agricultural and Extension Education......M.S.

Roy R. Lessy, Head

Professors:
Cecil E. Carter, Jr., Ph.D. Ohio State;  
Lewis Dickson, Ed.D. Cornell.

Associate Professors:
Roy R. Lessy, Ed.D. Oklahoma State;  

The Department of Agricultural and Extension Education offers a program leading to the Master of Science degree with a major in Agricultural and Extension Education. The program is designed primarily for teachers of Vocational Agriculture and staff employed by the Agricultural Extension Service. However, due to the flexibility of the program, it would be of value to any student interested in agriculture or adult and continuing education. The program may be completed under a thesis or non-thesis option with a concentration in either agricultural education or agricultural extension education. Candidates for the Master's degree must meet the general requirements of The Graduate School and those stipulated by the department.

**THE MASTERS PROGRAM**

**Thesis Option**
A candidate for the Master's degree who elects the thesis option must successfully complete:

1. A minimum of 30 hours of graduate credit in courses approved by the student's advisory committee. Only 6 hours of thesis credit may be counted toward this requirement.
2. A minimum of 20 hours of graduate credit in courses numbered at or above the 500 level.
3. A minimum of 12 hours of graduate credit in courses appropriate to the area of concentration taught in the department and a minimum of 6 hours taught from outside the department.
4. A minimum of 3 hours of graduate credit in course work in either research methodology or statistics.
5. A final oral examination.

**Non-Thesis Option**
A candidate for the Master's degree who elects the non-thesis option must successfully complete:

1. A minimum of 36 hours of graduate credit in courses approved by the student's advisory committee.
2. A minimum of 24 hours of graduate credit in courses numbered at or above the 500 level.
3. A minimum of 12 hours of graduate credit in courses appropriate to the area of concentration taught in the department and a minimum of 6 hours taught from outside the department.
4. A minimum of 3 hours of graduate credit in course work in either research methodology or statistics.
5. A creative component designed by the student and approved by the student's advisory committee for 3 hours of graduate credit.
6. A written and oral comprehensive examination.

**411 Fundamentals of Agricultural Extension** (3) History, philosophy, organizational structure, clientele served, major areas of programs, teaching methods, and relationships with other educational agencies. Graduate credit for non-majors only. Sp

**500 Thesis (1-15)** P/NoP only. E 500 S.0 Registration for Use of Facilities (3-15) 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. S/N only. E

**521 Extension Program Planning (2)** Methods of developing county extension programs: sources of essential basic information, determination of problems and needs of people, functions of lay people and various groups of extension workers. Use of committees, step-by-step planning procedures, coordinated county and state plans and characteristics of effective programs. Prereq: 411 or consent of instructor. Sp

**522 Extension Teaching Methods (2)** Teaching/learning methods and techniques applicable to extension work, interrelationships and relative effectiveness. Result demonstrations, method demonstrations, meetings, tours, audio-visual aids. Prereq: 411 or consent of instructor. Sp

**523 Extension Program Evaluation (2)** Principles, instruments and techniques of identifying, gathering, analyzing and using data to appraise programs and teaching and to determine progress of clientele. Prereq: 411, 521, or consent of instructor. Sp

**524 Research Methodology (3)** Social research design, hypothesis testing, sampling, survey construction, scaling, interviewing, data coding, basic descriptive and inferential statistics, and presentation of results. Prereq: 436, 523, or consent of instructor.

**525 Curriculum Planning in Agricultural Education (3)** Models, principles and procedures for developing curricula in agricultural education and scheduling learning activities for planned instructional programs. Prereq: 435, 436 or consent of instructor.

**526 Agricultural Education for First-Year Teachers (3)** Developing competencies needed by first-year teachers for planning, organizing and conducting program of vocational agriculture in local community. Group meetings in selected centers and visits by instructor. Prereq: 435, 436. Sp

**527 Adult Education and Strategies for Teaching (3)** Psychological, philosophical and sociological theories for adult education in agriculture; methods and strategies for organizing classes and teaching adults. Prereq: 411, 438, or consent of instructor.

**528 Advanced Techniques for Teaching Agricultural Mechanics (3)** Teaching techniques; determining needed competencies, organizing and managing agricultural mechanics facilities. Prereq: 435, 436 or consent of instructor.

**529 Supervised Occupational Experiences in Agricultural Education (3)** Historical and philosophical bases for supervised occupational experience programs and organizational patterns and procedures for conducting programs for farm and off-farm agricultural occupations. Prereq: 435, 436 or consent of instructor.

**530 Special Topics in Agricultural and Extension Education (1-3)** Current issues. Prereq: Consent of instructor. May be repeated. Maximum 9 hrs.

**531 Extension History, Philosophy and Objectives (3)** Historical and philosophical foundation of adult education in American agriculture, key figures, issues, legislative movement, farmer organizations and programs. Cooperative Extension Service, origin, legislation and growth and nature of present objectives and programs. Prereq: 411 or consent of instructor. Sp

**532 Managing Extension Organizations, Programs and Personnel (3)** Theory and principles of management for individual and organizational effectiveness. Prereq: 521, 531, or consent of instructor. Sp

**533 Special Problems in Agricultural and Extension Education (1-4)** Special research and/or special reports based on supervised independent study. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

**Agricultural Economics and Rural Sociology**  
(College of Agriculture)

**MAJOR**  
Agricultural Economics............M.S., Ph.D.

Joe D. Martin, Head

Professors:
M. B. Badenhop, Ph.D. Purdue;  
J. R. Brooker, Ph.D. Florida; C. L. Cleland, Ph.D. Wisconsin; I. Dubov, Ph.D. California (Berkeley); D. B. Eastwood, Ph.D. Tufts; L. H. Keller, Ph.D. Kentucky; T. H. Kidist (Asst. Dean), Ph.D. Kentucky; F. O. Leuthold, Ph.D. Wisconsin; D. L. McLemore, Ph.D. Clemson; B. R. McManus, Ph.D. Purdue; J. A. Martin, Ph.D. Minnesota; S. D. Mundy, Ph.D. Tennessee; B. H. Pentecost (Asst. Vice Pres.), J. D. Tennessee; W. P. Ramney (Emeritus), Ph.D. Minnesota; C. B. Sappington, Ph.D. Illinois; J. T. Whaley (Emeritus), Ph.D. Purdue.

Associate Professors:
B. C. English, Ph.D. Iowa State; R. H. Orr, Ph.D. Illinois; W. M. Park, Ph.D. Virginia Polytechnic Institute; R. K. Roberts, Ph.D. Iowa State; R. W. Todd; J. D. Tennessee.

Assistant Professors:
K. L. Haden, Ph.D. Okahoma State;  
R. G. Hullfater, Ph.D. California (Davis);  
D. E. Markley, Ph.D. Virginia Polytechnic Institute; G. K. Pompelli, Ph.D. California (Davis); L. W. VanTassell, Ph.D. Texas A&M.

The Department of Agricultural Economics and Rural Sociology offers programs of graduate study leading to the Ph.D. and M.S. The doctoral program includes concentrations in agricultural marketing and price analysis, agricultural policy, farm management and production economics, natural resource economics, and rural development. The M.S. program may be completed under a thesis option with concentrations in agricultural economics or rural sociology. A non-thesis option is available with a concentra-
tion in agricultural economics only. For specific information, contact the department head.

THE MASTER'S PROGRAM

Thesis Option

A candidate for the Master's degree must complete a minimum of 30 hours of graduate credit in courses approved by the student's Master's committee. Only 6 hours of thesis may be counted toward this requirement. At least 24 hours of graduate credit must be earned in courses numbered at or above the 500 level. In the agricultural economics concentration, 12 hours of agricultural economics, 6 hours of economic theory and 6 hours of quantitative methods are required. In the rural sociology concentration, 12 hours in the department (9 hours rural sociology), 6 hours of sociological theory, 3 hours of research methods and 3 hours of statistics are required. Each student must successfully complete a final oral examination.

Non-Thesis Option

A minimum of 36 hours of graduate course work is required. At least 27 hours must be in courses numbered at or above the 500 level. The program must include a minimum of 18 hours in agricultural economics, 6 hours of economic theory, and 6 hours of quantitative methods. Each student must successfully complete both written and oral comprehensive exams.

Minor

A minor will include 6 hours of course work in the department, with at least 3 hours in 500- or 600-level courses. The student's committee must include a member of the faculty from the department who will be responsible for designating courses required for the minor.

THE DOCTORAL PROGRAM

A minimum of 78 hours of graduate credit beyond the B.S. degree, including 24 hours of dissertation research, but excluding any Master's research credit, is required. A minimum of 24 hours in agricultural economics, 15 hours of economic theory, and 9 hours of quantitative methods are required. The program must include a minimum of 8 hours in courses numbered at or above the 600 level (excluding dissertation credits). Comprehensive exams include four written exams and one oral exam. The written exams are in general agricultural economics, economic theory, quantitative methods, and the area of concentration. Provisions exist for waiving the economic theory exam with a sufficient academic record in specific economic theory courses.

Minor

A minor will consist of a minimum of 9 hours of course work taken in the department and approved by the minor professor. At least 6 hours of credit in the minor area must be in 500- and 600-level courses.

Agricultural Economics

412 Agricultural Finance (3) Macro-finance, financial objectives, acquisition of debt and equity funds, capital investments, capital allocation, credit analysis, borrower and lender loan application analysis, insurance strategies, contracts and sources of agricultural credit, and financial intermediation. Prereq: Economics 201; junior standing or consent of instructor.

430 Agricultural and Trade Policy (3) Values, goals, and policy process; historical development and current characteristics of commodity, credit, food, and trade policy; relationship between domestic and international agricultural policy. Prereq: 510 or consent of instructor.


442 Farm Business Management II (3) Advanced topics and methods for farm business analysis using micro and mainframe computers; linear programming applications in farm planning; spreadsheet analysis of whole farm business; systems analysis and management control; risk analysis and management; income tax management; farm growth and intergeneration transfers. Prereq: 342.

450 Agricultural Price Analysis (3) Analysis of demand and supply mechanisms in agriculture; price determination; spatial equilibrium; temporal price patterns; pricing institutions. Prereq: 350 and Economics 311.


460 Rural Economic and Community Development (3) Historical and theoretical perspective on problems facing rural communities; linkages between farm and nonfarm sectors; models and tools for analyzing rural development. Prereq: 210 or consent of instructor.

470 Natural Resource Economics (3) Nature of natural resources; economic efficiency as basis for natural resource use; externalities in natural resource use; factors influencing environmental quality; alternative public policy tools for influencing natural resource use or improving environmental quality. Prereq: 210 or consent of instructor.

483 Independent Study in Agricultural Economics (1) Directed study; individual research and report writing. Off-campus intern experience and reporting. Special courses in specific topics. Student must arrange with instructor before registering. Graduate credit for non-majors only. Prereq: Junior standing. May be repeated. Maximum 6 hrs. E

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

502 Registration for Use of Facilities (3-15) 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. S/NC only. E

520 Research Methodology (1) Nature of scientific method and research processes; role of assumptions, hypotheses, theory and models; methodological problems of social sciences; establishing research priorities. Prereq: Consent of instructor.

522 Mathematical Programming Methods in Agricultural Economics (3) Linear, integer and quadratic programming techniques with empirical applications to problems of firm and region; profit maximization, cost minimization, allocations, risk, allocation over space and time. Prereq: Consent of instructor.

524 Econometric Methods in Agricultural Economics (3) Application of statistical methods to agricultural economic models; examination of supply, demand and production functions; microeconomic forecasting models; interpretation of results. Prereq: Statistics 461 or consent of instructor.

540 Advanced Agricultural Production Economics (3) Theoretical and empirical concepts in agricultural resource allocation; evaluation of both static and dynamic issues; decision theory with application to agricultural firms; aggregate impact of firm decisions on industry. Prereq: 440 or equivalent. Sp

550 Advanced Agricultural Marketing (3) Analysis of structure, conduct and performance of agricultural marketing systems; application of pricing theory concepts to existing circumstances in agricultural industries; examination of methods used to evaluate conduct and performance; analysis of transportation issues and location theory. Prereq: Economics 311 or consent of instructor.

560 Advanced Rural Economic Development (3) Theoretical and historical perspectives on process of economic development; role of agriculture, sectoral interdependence and trade in development; application of theory to specific development issues. Prereq: 480 or consent of instructor.

570 Advanced Natural Resource Economics (3) Analysis of natural resource allocation issues; applied welfare economics, external effects and evaluation of public policy. Prereq: 470 and Economics 511 or consent of instructor.

593 Special Topics in Agricultural Economics (1-3) Topics to be assigned. Prereq: Consent of instructor. May be repeated. Maximum 9 hrs. S/NC only. E

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

620 Agricultural Policy Analysis (3) Evaluation of public policy as related to agricultural industry and rural areas. Prereq: Economics 510 and 513 or consent of instructor.

640 Agricultural Supply Analysis (3) Critical evaluation of both theoretical basis and empirical procedures used for estimating agricultural supply relationships using regression techniques, production functions, mathematical programming, firm growth models and simulation in supply analysis. Prereq: 540 or consent of instructor.

650 Operations Analysis in Marketing (2) Components and functions of marketing system, levels of analysis and tools, operational efficiency, interregional competition. Prereq: 450 and 550 or consent of instructor.

652 Consumer Demand and Food Consumption (2) Simultaneity of consumer decision making; food demand, constraints on demand. Complete demand system models. Prereq: Economics 511 and 512 or consent of instructor. Sp, A

660 Seminar in Rural Economic Development (2) Current topics in economic development of rural areas. Current literature; evaluation of issues in both international and domestic development. Prereq: 560 or consent of instructor. Sp, A

670 Seminar in Natural Resource Economics (2) Issues in natural resource economics. Current literature; evaluation of theory, methodology and public policy as related to allocation of natural resources. Prereq: 570 or consent of instructor. F, A

Rural Sociology

480 Diffusion of Agricultural Technology (3) Analysis of diffusion and communication processes in which new technology spreads from scientists to change agents and then to farmers. Innovation decision process; communication behavior, mass media, role of professional change agents, opinion leadership and consequences of technological change. Prereq: 380 or consent of instructor. (Same as Sociology 480) Sp

580 Advanced Rural Sociology (3) Application of sociological concepts and theory to analyzing changing structure and function of rural life in U.S. and developing countries. Demographic changes, rural social and political institutions, and effects of rural development processes. Prereq: 380 or equivalent. (Same as Sociology 580) Sp

593 Special Topics in Rural Sociology (1-3) Current sociological issues involving application of sociologi-
Agricultural Engineering

(College of Agriculture)

MAJORS DEGREES
Agricultural Engineering M.S., Ph.D.
Agricultural Engineering Technology M.S.

D. Houston Luttrell, Head

Professors:
B. L. Bledsoe (Associate Head), Ph.D. 
North Carolina State, P.E.; Z. A. Henry, Ph.D. 
North Carolina State, P.E.; D. H. Luttrell, Ph.D. 
Iowa State; J. J. McDow, Ph.D. 
Michigan State, P.E.; J. J. Sewell (Assoc. Dean), Ph.D. 
North Carolina State, P.E.; 
C. H. Shelton (M.S., Virginia Polytechnic Institute), Ph.D. 
Tennessee, P.E.; L. R. Wilhelm, Ph.D. 
Tennessee, P.E.

Associate Professors:
R. D. vonBernerth, Ph.D. Nebraska, P.E.; 
C. R. Mote, Ph.D. Ohio State, P.E.

Assistant Professor:
D. O. Baxter, M.S. Missouri.

Graduate programs leading to the Master of Science and Doctor of Philosophy with a major in Agricultural Engineering are available to graduates of a recognized curriculum in engineering, mathematics, or one of the physical or biological sciences. A graduate program leading to the Master of Science in Agricultural Engineering Technology is available to graduates in a recognized curriculum in agriculture or other related fields. Each applicant will be advised about any prerequisite courses before entering a program. The student’s program of study must be approved by his/her advisory committee and must comply with the requirements of the Graduate School.

A completed departmental data sheet and three completed Graduate School Rating Forms are required in addition to the Graduate School application.

THE MASTER’S PROGRAMS

Agricultural Engineering Requirements

1. A total of at least 24 hours credit in graduate course work in agricultural engineering and related areas. The minimum requirements are 12 hours in agricultural engineering; 9 hours in other engineering, mathematics, physical and biological science, agricultural, or business areas (as approved by the advisory committee); and 3 optional hours from either one of these two categories.

2. Active participation in graduate seminars conducted by the department. Resident students must register for a minimum of 2 hours in Agricultural Engineering 510 and must attend the graduate seminar each semester whether registered or not.

3. A Master’s thesis comprising at least 6 hours of Agricultural Engineering 500.

4. A final oral examination covering the thesis, related areas, and graduate course work.

Agricultural Engineering Technology Requirements

1. A total of at least 24 hours in graduate course work in Agricultural Engineering Technology and related areas. Minimum requirements are 12 hours in agricultural engineering, 9 hours in other agricultural, business, physical and biological science, or engineering-related areas (as approved by the graduate committee) and 3 optional hours from either one of these categories.

2. Active participation in graduate seminars conducted by the department. Resident students must register for a minimum of 2 hours in Agricultural Engineering Technology 530 and must attend the graduate seminar each semester whether registered or not.

3. A Master’s thesis comprising at least 6 hours of Agricultural Engineering Technology 500.

4. A final oral examination covering the thesis, related areas, and graduate course work.

5. A minor in another subject area can be included in the program.

THE DOCTORAL PROGRAM

Concentrations for the doctoral program in Agricultural Engineering include agricultural power and machinery, agricultural structures and environment, agricultural electrical and electronic systems, food and process engineering, and soil and water conservation engineering. Students applying for entrance into the doctoral program must submit evidence of ability to perform and report independent research to the satisfaction of the department. The Master’s thesis may be offered as such evidence. Scores on the GRE aptitude and engineering tests also are required.

Departmental Requirements

1. A minimum of 72 hours credit beyond the Bachelor’s degree, excluding credit for the Master’s thesis. Of this, 24 hours must be 600 Doctoral Research and Dissertation.

2. Graduate courses in agricultural engineering comprising a minimum of 18 hours credit.

3. Supporting graduate courses (outside the Agricultural Engineering Department) in related engineering, agricultural, mathematical, and other scientific fields comprising at least 24 hours. The remaining minimum of 6 hours required for the degree may be taken either in agricultural engineering or related fields.

4. A minimum of 24 hours from course work numbered greater than 500, of which at least 9 hours must be in courses numbered greater than 600.

5. Active participation in graduate seminars conducted by the department. Resident students must register for a minimum of 2 hours in Agricultural Engineering 610 and must attend the graduate seminar each semester whether registered or not.

6. Satisfactory performance in both written and oral comprehensive examinations prior to admission to candidacy. A final oral examination also is required which includes a defense of the dissertation and subject matter that the student’s graduate advisory committee considers appropriate.

Agricultural Engineering

430 Mobile Hydraulic Power System Design (2) Functional and operational characteristics of mobile hydraulic system components; pumps, valves and actuators; analysis and synthesis of power transmission and control circuits. Prereq: Engineering Science and Mechanics 341. 1 hr and 1 lab. Sp, A

435 Design of Mechanisms for Agricultural Machines (2) Types of mechanisms; transmission angles; synthesis of plane mechanisms; introduction to space mechanisms. Prereq: Mechanical Engineering 465 or equivalent. 1 hr and 1 lab. Sp, A

440 Irrigation and Drainage Design (2) Design of irrigation and drainage systems; crop response, climate, water quantity and quality, and system characteristics. Prereq: 340 or equivalent. 2 hrs and 1 lab. Sp, A

445 Processing and Materials Handling Design (2) Development of materials for process utilization and crops handling and economic merit. Prereq: 330. 1 hr and 1 lab. Sp, A

450 Electrical Distribution and Utility Design (2) Design of on-farm electrical systems, control, motors, stray voltage, special electrical loads, and safety. Prereq: Electrical Engineering 301. 1 hr and 1 lab. Sp, A

455 Waste Management System Design (2) Waste renovation principles and livestock waste handling techniques; problem definition, feasibility study, analysis, synthesis, and preparation of plans and specifications. Prereq: Engineering Science and Mechanics 341, Plant and Soil Science 210, Industrial Engineering 405, English 459. 1 hr and 1 lab. Sp, A

460 Design of Agricultural Structures (2) Design fundamentals for wood, steel and concrete components, compression and tension members; beam and column design; pole structure design; fasteners and joint design. Prereq: 320. 1 hr and 1 lab. Sp, A

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

502 Registration for Use of Facilities (3-15) 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. S/N only. E

510 Similitude in Design and Research (3) Dimensional analysis; governing equations; theory of models; true, distorted, dissimilar models; prediction equations; interpretation of data; applications to machinery, soil and water structures, agricultural buildings and other agricultural engineering related problems. Prereq: Engineering Science and Mechanics 321, 341. 2 hr and 1 lab. F, A

520 Agricultural Engineering Instrumentation (3) Modern instrumentation techniques. Static and dynamic response of instrumentation; signal conditioning; temperature, moisture, optical radiation, displacement, strain, pressure, velocity, acceleration, and flow measurements; digital data acquisition and control. Prereq: 410 or equivalent. 2 hrs and 1 lab. Sp, A

530 Research Problems in Agricultural Engineering (1-3) Theoretical and experimental studies relating to current problems in agricultural engineering. May be repeated. Maximum 6 hrs. E

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

610 Seminar (1) Current research and literature. May be repeated. Maximum 3 hrs. E

620 Computer Simulation of Agricultural Systems (3) Scientific approach to digital simulation: system definitions and boundaries, formulation of models.
552 Seminar (1) Current research and literature relat-
ed to agricultural production technology. May be
repeated. Maximum 3 hrs. E

552 Selected Topics in Agricultural Engineering Tech-
nology (1-3) Current trends and problems in agricul-
tural production technology. May be repeated. Maxi-
mum 6 hrs. E

Agriculture

(College of Agriculture)

512 Teaching Internship in Agriculture (1) Super-
vised experience in teaching; preparation and evalua-
tion of agriculture students. May be repeated. Maxi-
mum 2 hrs for M.S. students; 4 hrs for Ph.D. stu-
dents.

Animal Science

(College of Agriculture and
College of Veterinary Medicine)

MAJOR

DEGREES

Animal Science .................. M.S., Ph.D.
Veterinary Medicine ............. D.V.M.

Don O. Richardson, Head

Professors:

K. M. Barth, Ph.D. Rutgers; M. C. Bell (Emeritus), Ph.D. Oklahoma State; J. K. Blethen (Emeritus), Ph.D. Ohio State; C. C. Chamberlain (Emeritus), Ph.D. Iowa State; B. H. Erickson, Ph.D. Kansas State; O. G. Hall (Dean), Ph.D. Iowa State; S. L. Harsand (Emeritus), Ph.D. Florida; E. R. Lidvall, M. S. Tennessee; T. P. McDonald, Ph.D. Tennessee; J. B. McLaren, Ph.D. Auburn; G. M. Merriman (Emeritus), D.V.M. Michigan State; J. K. Miller, Ph.D. Georgia; M. J. Montgomery, Ph.D. Wisconsin; R. L. Murphy (Emeritus), Ph.D. Wisconsin; D. O. Richardson, Ph.D. Ohio State; H. V. Shirley, Ph.D. Illinois; R. R. Shrode, Ph.D. Iowa State; R. L. Tugwell (Emeritus), Ph.D. Kansas State.

Associate Professors:


Assistant Professors:

G. A. Baumbach, Ph.D. Florida; B. R. Bell, Ph.D. North Carolina State; A. B. Chestnut, Ph.D. Illinois; W. C. Cullen, Ph.D. Minnesota; J. D. Godkin, Ph.D. Massachusetts; S. P. Oliver, Ph.D. Ohio State; S. E. Orosz, D.V.M., Ph.D. Ohio State; J. D. Smalling, Ph.D. Texas A & M.

Animal Science

The Department of Animal Science offers graduate programs leading to the Master of Science and Doctor of Philosophy in Animal Science. At the M.S. level, areas of concentration are nutrition, breeding, physiology (reproductive, mamma-
ary, and metabolic), and management with orientation toward beef cattle, dairy cattle, swine, and poultry. Since the department is also a part of the College of Veterinary Medicine, the areas of anatomy, systemic physiology (blood, cardiovascular, and neural), and histology are also available. The Ph.D. program offers concentrations in animal nutrition, animal breeding, animal physiology, animal anatomy, and animal management. For specific information, con-
tact the department head.

During the first term of matriculation in each degree program, all graduate students are required to enroll in 595. Students are also required to enroll in 596 each fall term, and in 597 each spring term.

THE MASTER'S PROGRAM

For admission to the M.S. program, a student must have obtained a 3.0 grade point average on a 4.0 scale during the junior and senior years) in a com-
pleted undergraduate degree program in one of the animal sciences or in a related area. The student must submit evidence (letters of recommendation, personal interview, etc.) that indicates ability to complete require-
ments for the M.S. Prerequisite courses may be required if the student has insufficient undergraduate background. If the student has an unsatisfactory grade point average, acceptance may be on a probationary (non-
degree) basis and a minimum of 12 hours of graduate course work must be completed the first term with a minimum grade point average of 3.0 for admission to the M.S. pro-
gram.

The program requires the writing of a thesis based on original research; the com-
pletion of a minimum of 24 hours of graduate course work, of which at least 14 hours must be taken in courses numbered at or above the 500 level; and a minimum of 6 hours of thesis. Included in the course requirement are 2 hours of Agriculture 12, a minimum of 3 hours in statistics. These statistics courses must be chosen from the 400, 500, or 600 level of courses approved for use in the Intercollegiate Graduate Statistical Pro-
gram (ICGSP). The remainder of the course work will be selected jointly by the student and the major professor depending on the student's area of concentration and profes-
sional objectives.

The advisory committee will consist of the major professor, a faculty member of Animal Science, who will act as chairperson of the committee, and a minimum of two other fac-
ulty members, one of whom may be outside of the Animal Science Department. The advisory committee approves the student's course work and research problem and con-
ducts the final oral examination which consists of a comprehensive oral examina-
tion and a defense of the thesis.

THE DOCTORAL PROGRAM

The doctoral program requires a minimum of 48 semester hours of course work beyond the B.S. and a minimum of 24 hours of doc-
toral research and dissertation. Students must present their M.S. thesis research, their dissertation proposal, and the completed dis-
sertation research in the departmental seminar. The 48 hours of course work must include:
1. A minimum of 16 hours in related fields outside Animal Science.
2. At least 24 hours credit at the 500 and 600 level, exclusive of doctoral research and dissertation, of which a minimum of 6 hours must be at the 600 level. Students in the nutrition, breeding, physiology, or anatomy concentrations must complete at least 12 hours at the 500 and 600 level in the respective concentration or closely related area.

Students in the management concentration must complete Animal Science 581 and 9 hours at the 500 or 600 level in two non-management concentrations for a total of 12 hours (including 581).

3. A minimum of 1 hour of Agriculture 512 in addition to that required at the M.S. level.
4. A minimum of 6 hours in 400-, 500-, or 600-level statistics courses approved for the IGDSP.

A minimum of five faculty members will constitute the student's advisory committee, of which at least one must be outside Animal Science. The major professor will be the chairperson. The student and the major professor select a program of study depending on the student's area of concentration and professional interests. The advisory committee approves the course work and the dissertation research proposal and determines if there is to be a foreign language requirement. The advisory committee must approve comprehensive written and oral examination and the final dissertation defense examination.

481 Beef Cattle Production and Management (3) Integration of principles of nutrition, physiology, and breeding into complete beef cattle management programs. Structure of industry, enterprise establishment, systems of production, production practices and herd improvement programs. Alternatives evaluated: production response and economic returns. Prereq: Animal science sophomore and junior core courses or consent of instructor. 2 hrs and 1 lab. Sp

482 Dairy Cattle Production and Management (3) Integration of principles of nutrition, physiology, and breeding into complete dairy cattle management programs. Structure of industry, enterprise establishment, systems of production, production practices and herd improvement programs. Alternatives evaluated: production response and economic returns. Prereq: Animal science sophomore and junior core courses or consent of instructor. 2 hrs and 1 lab. Sp

483 Pork Production and Management (3) Integration of principles of selection, nutrition, breeding, physiology, and marketing into complete pork production programs and management program. Structure of industry, enterprise establishment, systems of production, production practices, and herd improvement program. Alternatives evaluated: production response and economic returns. Prereq: Animal science sophomore and junior core courses or consent of instructor. 2 hrs and 1 lab. Sp

484 Poultry Production and Management (3) Structure of poultry enterprises: rearing, housing, feeding, production, and marketing. Prereq: Animal science sophomore and junior core courses or consent of instructor. 2 hrs and 1 lab. F

486 Lamb and Wool Production and Management (3) Integration of principles of selection, nutrition, breeding, physiology, and marketing into complete lamb and wool production and management programs. Structure of industry, enterprise establishment, systems of production, production practices and economic returns. Alternatives evaluated: production responses and economic returns. Prereq: Animal science sophomore and junior core courses or consent of instructor. 2 hrs and 1 lab. Sp

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

502 Registration for Use of Facilities (3-15) 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 to meet degree requirements. May be repeated. S/NC only. E

511 Special Problems in Animal Science (1-4) Prereq: Consent of instructor and department head. May be repeated. Maximum 9 hrs. E

523 Advanced Mammalian Reproduction (3) Current topics and "frontiers in reproductive biology. Prereq: 322, Sp-A

534 Advances in Mammary Physiology (3) Development, anatomy, and function of mammary glands; endocrine interactions associated with mammary development and function; factors affecting yield and composition of mammary secretions. Prereq: 322 or consent of instructor. Sp-A

531 Analytical Techniques in Animal Sciences (3) Physical and chemical analyses of feeds, ingredients, tissues, and biological fluids associated with nutrition, physiology and food products research. Prereq: Consent of instructor. 1 hr and 2 labs. F

532 Experimental Techniques in Animal Nutrition (3) Animal experimental techniques and concepts for growth, digestion, balance, and tracer studies. Prereq: 531. 1 hr and 2 labs. Sp

533 Nonruminant Animal Nutrition (3) Physiological development in digestive system of nonruminant animal during the life cycle. Concepts and methodology concerning nutrient intake, relationships, availability and deficiencies of nutrients. Nonnutritive additives and environmental effects on nutrient utilization; nutritional stimulation of products. Prereq: 322 or consent of instructor. F

543 Ruminant Animal Nutrition (3) Digestive physiology of ruminant stomach, rumen fermentation, determination of nutrient requirement and feed intake regulations of ruminant animals. Prereq: 332. F

541 The Genetics of Populations (2) Application and extension of principles and concepts learned in basic genetics, breeding and statistics to convey useable comprehension of the genetics of populations. Prereq: Basic courses in genetics, breeding and statistics. 1 hr and 1 lab. F,A

542 Applied Animal Breeding (3) Procedures for estimating population parameters, determination of response to various selection methods and breeding system, estimation of genetic and phenotypic interrelationships among metric traits, estimation of breeding values, optimum methods of simultaneously altering several metric characters, industrial application of animal breeding methodology. Prereq: 541 or equivalent. Sp,A

571 Design and Analysis of Biological Research (3) Experimental design and procedures; selection of experimental units; statistical models and contrasts, analyses of variance; covariates, treatment arrangements, mean separation and regression. Prereq: Plant and Soil Science 471 or equivalent; knowledge of software package on micro- or mainframe computer. (Same as Plant and Soil Science 571.) Sp

572 Least-Squares Analysis (2) Least-squares estimation and hypothesis testing procedures for linear models with possible singular covariance structures; maximum likelihood and variance component maximum likelihood estimation. Prereq: 571 or equivalent. 2 hrs and 1 lab. F

573 Intermediate Statistical Computing (2) Application of statistical procedures to analysis and handling of data using computer package. Increasing sophistication and hardware; statistical analysis methods with high speed digital computers. Prereq: 521 or equivalent; knowledge of software package on mainframe and software package. 2 hrs and 1 lab. F

581 Advanced Livestock Management (3) Objective functions to evaluate alternative livestock production management policies. Systems approach to analysis and integration of reproductive management programs, genetic improvement policies, alternative feeding systems, programs, considerations of time, risk, and uncertainty in livestock production. Tools, linear programming, as aids in decision-making and resource allocation. Prereq: Management, economics, computer science, statistics. 2 hrs and 1 lab. F

595 Colloquium in Animal Science (1-4) Orientation; teaching, research and extension programs. Guidance in preparation of student's course of study and research plans. Required of beginning graduate students in animal science program. S/NC only. E

596 Discipline Oriented Seminar (1) Required of all animal science graduate students. Prereq: Animal breeding, animal nutrition, animal physiology, animal management or animal anatomy. May be repeated. Maximum 5 hrs. S/NC only. F

597 Commodity Oriented Seminar (1) Required of all animal science graduate students. Prereq: beef and sheep, dairy, poultry, swine and veterinary sessions. May be repeated. Maximum 5 hrs. S/NC only. Sp

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

621 Advanced Topics in Animal Physiology (1-4) Recent advances and concepts, research techniques, current problems. May be repeated. Maximum 6 hrs. E

631 Advanced Topics in Animal Nutrition (1-4) Recent advances and concepts, research techniques, current problems. May be repeated. Maximum 6 hrs. E

632 Advanced Energy-Protein Nutrition (4) Chemical forms, digestion, absorption, intermediary metabolism, deficiencies, excesses and interaction of minerals and vitamins. Prereq: 533 or 534, and Biochemistry 410 or Nutrition 511 or consent of instructor, F,A

633 Advanced Mineral-Vitamin Nutrition (4) Chemical forms, digestion, absorption, intermediary metabolism, deficiencies, excesses and interaction of minerals and vitamins. Prereq: 533 or 534, and Biochemistry 410 or Nutrition 511 or consent of instructor. F,A

641 Advanced Topics in Animal Breeding (1-4) Advances and concepts, research techniques, current problems. Prereq: 542 or equivalent. May be repeated. Maximum 6 hrs. E

642 Quantitative Breeding Research Methods and Interpretation (2) Estimation of genetic parameters: phenotypic, genetic, and environmental correlations; repeatability; heritability; and selection indexes from simulated and actual data. Prereq: 542. 1 hr and 1 lab. Sp,A

671 Advanced Research Planning (3) (Same as Plant and Soil Science 871). F

681 Advanced Topics in Animal Management (1-4) Recent advances and concepts, research techniques, current problems. May be repeated. Maximum 6 hrs. E

Animal Science-Veterinary Medicine

See Veterinary Medicine for program description.

PROFESSIONAL COURSES

821-22 Anatomy I & II (4,4) Gross and applied anatomy: neural structures of common domestic animals: dog, cat, horse, cow. Dissection of embalmed specimens, prosections, slides, models, and living animals.

823-24 Physiology I & II (4,4) Introduction to concepts and problems in physiology which form base for clinical investigations and for formal training in pharmacology, medicine, pathology, and surgery. Cellular, neural, cardiovascular, renal, respiratory, digestive, endocrine, and reproductive physiology.

827 Special Problems in Animal Science (1-3) Extra-
mural and specially designed study for students interested in select topics in anatomy, histology, and physiology.

GRADUATE COURSES

601 Special Topics in Anatomy and Physiology of Domestic and Laboratory Animals (1-4) May be repeat-
ed. Maximum 6 hrs. E

502 Registration for Use of Facilities (3-15) 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 repeat-
ed. S/JC only. E

521 Animal Physiology (4) Introduction to major body systems and interrelationships: nervous, muscle, blood, cardiovascular, kidney, respiratory, gastrointestinal, and endocrine. Concepts of metabolism, tempera-
ture regulation, and acid-base balance. Prereq: General undergraduate anatomy and physiology, and biochem-
istry, or consent of instructor. 3 hrs and 1 lab.

551 Mammalian Organology (3) Microscopic study of structure of organs and major organ systems. Prereq: Embryology, histology and/or consent of instructor. 2 hrs and 1 lab. Sp

552 Anatomy of Domestic Carnivores (4) Gross dis-
section by regions and systems of dog with comparison to cat. Prereq: Consent of Instructor. 1 hr and 3 labs. F

553 Anatomy of Farm Animals (3) Gross dissection by regions of horse, cow and pig with lecture/demonstration. Prereq: 552 and/or consent of instructor. Sp

554 Comparative Hematology (3) Morphology, physiology and development of blood and blood forming organ systems; similarities and differences of major domestic and laboratory species. Prereq: Undergraduate physiology and/or consent of instructor. 2 hrs and 1 lab. Sp,A

555 Anatomy of the Central Nervous System (1) Gross and microscopic anatomy of mammalian brain and spinal cord using sheep as model. Prereq: Consent of instructor. Sp,A

651 Advanced Topics in Animal Anatomy (1-4) Cur-
rent and future research methodology, laboratory situation, recent advances in quantitative techniques for gross and microscopic anatomy. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs. E

652 Disorders of the Endocrine System (2) Patho-
physiology of physiological aspects of diseases; endocrine glands of various animal species. Prereq: 521 or con-
sent of instructor. Sp,A

653 Advanced Mammalian Neurophysiology (3) Advanced physiological theories and principles related-
ed to the properties of certain mammalian nervous system. Special senses and current electrodagnostic pro-
cedures for evaluating neural systems. Prereq: Advanced course in animal physiology or equivalent and an advanced neuroanatomy course, or Psychology 526, and consent of instructor. Sp,A

Associate Professors:
I. E. Harrison, Ph.D. Syracuse; B. J. Howell, Ph.D. Kentucky; W. E. Klippel, Ph.D. Missouri; M. H. Logan, Ph.D. Pennsylvania State; G. F. Schroedi, Ph.D. Washington State.

Assistant Professors:
J. F. Simik, Ph.D. SUNY-Binghamton; P. S. Willey, Ph.D. Tennessee.

Instructor:
M. A. Bass (part-time), Ph.D. Kansas State.

Research Associate Professor:

Research Assistant Professors:
M. O. Smith, Ph.D. Tennessee; S. D. Tardif, Ph.D. Michigan State.

The Department of Anthropology offers both the M.A. and Ph.D. degrees with concentr-
ations in biological anthropology, archaeology, cultural anthropology, and zoologi-
cal anthropology. Additional information on the Anthropology graduate program may be obtained from the departmental brochure or by contacting the Anthropology Department.

THE MASTER'S PROGRAM

For admission, an applicant must provide three letters of recommendation and a letter of intent. An undergraduate background in anthropology is required, but students lacking this may be admitted under special circumstances.

M.A. Requirements
1. A minimum of 30 hours for graduate credit. A minimum of 24 of these hours must be in anthropology, including the following:
   a. 510 and 560
   b. one of the following courses: 512, 513, 514, 515
   c. one of the following courses: 520, 531, 561, 564
   d. two of the following courses: 580, 581, 582, 583

   These requirements must be met prior to taking the Graduate Evaluation Examination. 2. Successful completion of the depart-
mentally developed Graduate Evaluation Examination (GEE). It is expected that it will be taken at the end of the third semester in residence. The GEE is given each year in January.

3. An introductory statistics course (usually Statistics 531) if such a course has not been previously taken.
4. Successful completion of the thesis and final oral examination.

THE DOCTORAL PROGRAM

An incoming student should possess an M.A. in Anthropology. Students with an M.A. in another discipline may be admitted after completing specific requirements outlined in the departmental brochure. In addition to the requirements prescribed by The Graduate School for the Ph.D., the Anthropology Department requires the following:
1. Formation of an advisory committee and establishment of a program of study in consultation with the committee.
2. No minimum credit hour requirement. Specific courses to be taken are determined

by students and their advisory committees. Students should plan to devote a minimum of 4 years beyond the B.A. to attain the Ph.D.

3. Demonstration of competence in statistics by completing Statistics 531 and 532 with a grade of B or better.
4. Demonstration of knowledge of one foreign language. This language should normally be French, German, Russian, or Spanish, but another language may be substi-
tuted at the committee's discretion. This requirement may be met by:
   a. Successful performance on a language examination administered by the appropriate language department. Students electing this alternative should consult with their advisor.
   b. Completion of the intermediate (200 level) sequence of a language with a grade of B or better in the second semester.
   c. Completion of the second semester of specialized reading courses for graduate students with a grade of B or better.

5. Written and oral comprehensive examinations in three areas of specialization to be determined by the committee.


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

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

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

413 Dynamics of Culture (3) Major forms of culture change, ranging from evolution and diffusion to reli-
gious revitalization and political revolt. Continuity and change in diverse cultural settings through use of archaeological, ethnographic, and contemporary cases. Prereq: 130.

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.

450 Current Trends in Anthropology (3) Analytical, integrative review of current directions of research and theory in anthropology.

460 Selected Topics in Archaeology (3) Regional or theoretical issues in archaeology for undergraduate students. Practical experience in laboratory study of archaeological materials. Prereq: 120 or consent of instructor. May be repeated. Maximum 6 hrs.

461 African Prehistory (3) African cultural history from earliest evidence of human activity to time of European contact. Stone age of African south of Sahara. Prereq: 120 or consent of instructor. (Same as Afro-

American Studies 461.)

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

643 Rise of Complex Civilizations (3) Development of complex societies in Old World from origins of agricul-
tural economics to rise of States. Mesolithic, Neolithic, and Metal Age lifeways in Africa, Europe, and Asia. Prereq: 120 or consent of instructor.

Anthropology

(College of Liberal Arts)

MAJOR

DEGREES

Anthropology ............................... M.A., Ph.D.

William M. Bass, Head

Professors:
W. M. Bass, Ph.D. Pennsylvania;
C. H. Faulkner, Ph.D. Indiana; R. L. Jantz, Ph.D. Kansas; P. W. Parmalee, Ph.D. Texas
A.M. F. H. Smith, Ph.D. Michigan;
M. C. Wheeler (part-time), Ph.D. Yale.

42 Fields of instruction/Anthropology
464 Principles of Zooarchaeology (3) Basic osteological study of remains of archaeological faunal remains; identification, interpretation, and analysis of archaeological faunal remains.


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. E

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

502 Registration for Use of Facilities (3-15) 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. 9/NC only. E

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) Seminar 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 hrs.

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

513 Rural Studies in Anthropology (3) Theory, method, and ethnographic research on selected problems and aspects of traditional agrarian groups in U.S. and peasant societies. Prereq: Cultural area course or equivalent. May be repeated. Maximum 6 hrs.

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.

516 Nutritional Anthropology (3) Anthropological contributions to study of food-related cultural and biological variation and present populations. Prereq: 110, 120, 130, or consent of instructor. Recommended prereq: Basic nutrition course.

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

521 Laboratory Studies in Zooarchaeology (4) Examination of skeletal remains of major vertebrate groups, shells of terrestrial and aquatic mollusks, in relation to animal remains from archaeological contexts. Basic techniques and characteristics of species encountered in aboriginal sites; use of comparative collections. May be repeated. Maximum 8 hrs.

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

530 Fieldwork in Archaeology (3-5) Practicum in surveying, excavating, processing, and analysis of archaeological data. Prereq: Consent of instructor. May be repeated. Maximum 9 hrs.

531 Quantitative Methods in Archaeology (3) Application of quantitative techniques to archaeological data critically examined through literature and problem solving. Basic and advanced statistical analyses and other mathematical methods. Prereq: Consent of instructor.

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 relationships of federal and state agencies, public interest groups, and professional archaeologists in conduct of federally sponsored archaeology. May be repeated. Maximum 6 hrs.

563 Problems in Old World 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 survey and study of ancient American Indians and other cultures in Southeastern United States; Tennessee prehistory.

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) Application of physical anthropology to problems in human identification. Determination of sex, age, and sex of skeleton and preparation of reports for legal medicine. Prereq: 480.


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

584 Quantitative Methods in Biological Anthropology (3) Application of statistical procedures to biochemical problems; interpretation of statistical results. Linear models. Prereq: Statistics 532 or equivalent.

585 Anthropometry (3) Techniques of measuring and describing skeletal material and human subjects: practical applications to growth, nutrition and human engineering. Prereq: Consent of instructor.

591 Foreign Study (1-15) See page 31.

592 Off-Campus Study (1-15) See page 31.

593 Independent Study (1-15) See page 31.

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

601 Advanced Graduate Research (1-6) Independent study leading to preparation of major work in anthropology by advanced graduate students. May be repeated. Maximum 12 hrs. Only 3 hrs may count toward 600-level requirements.

610 Seminar in Cultural Anthropology (3) Selected topics primarily for doctoral students in cultural anthropology. May be repeated. Maximum 6 hrs.

611 Theory in Cultural Anthropology (3) Critical evaluation of current issues in theory and data interpretation, primarily for doctoral students in cultural anthropology.

620 Seminar in Nutritional Anthropology (3) Analytical review of major theoretical viewpoints in nutritional anthropology. Prereq: 516 and consent of instructor.

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

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

591 Selected Topics in Paleoanthropology (3) May be repeated. Maximum 6 hrs.

Architecture

(Office of the Provost)

Roy F. Knight, Dean
William J. Lauer, Associate Dean
Jon Coddington, Assistant to the Dean

Professors:


Associate Professors:

M. D. Herz, B.Arch. Columbia; S. A. Kinzy, M.Arch. Illinois; W. E. Martella, B.Arch. California (Berkeley); M. S. Moffett, Ph.D. Massachusetts Institute of Technology; Y. Narancic, B. Arch. Belgrade; J. S. Rabun, M.A. Texas.

Assistant Professors:


The School of Architecture does not currently offer a graduate degree program; however, the courses listed below are available for graduate credit to students enrolled in other graduate programs.

Besides the undergraduate five-year Bachelor of Architecture degree program, the School of Architecture offers a three-year program leading to a Bachelor of Architecture to students who already hold a
first professional degree recognized for pur-
ters' residency is required. The degree is the
and take an intensive drawing course which
before entering the second degree program
the School of Architecture the summer
not have these skills, he/she can come to
drawing skills prior to taking Basic Architec-
tion. proficiency in freehand and orthographic
submit a portfolio which demonstrates a
previous academic work and must have
poses of eventual qualification for the license
within three years. A minimum of 6 semes-
tors. Bachelor's degree or an advanced degree in
44 Fields of Instruction/Art
examples of landscape architecture analyzed in terms
theoretical basis for design throughout history. Selected
421 History of Landscape Architecture (3)Intellectu-
1607 until 1860.
American architecture from arrival of immigrants in
413 Tennessee Architecture (3) History of settle-
and exemplary design approaches through lectures,
ments. Prereq: Consent of instructor.
433 Earthquake-Resistant Structures (3) Analysis and
design structures to resist earthquake effects. Earth-
quakes phenomena. Vibration of single degree structural
systems. Resonance and damping. Introduction to
dynamic analysis of structures. Instrumentation and
structural response. Frame and shear wall behavior.
Ground structure interaction. Prereq: Consent of instruc-
434 Elementary Structural Matrix Methods (3) Introduction to generalized matrix methods of analy-
sis of structures. Review of matrix algebra and vectors,
development of member stiffness and flexibility matri-
cs, assembly of structure stiffness and flexibility matrices. Prereq: Consent of instructor.
435 Planning and Design of Tall Buildings (3) Archi-
tectural, economic and urban design considerations in
design of tall buildings. Environmental and service
systems. Wind, fire, and earthquake resistance. Struc-
tural and construction considerations. Building standards.
Steel, concrete, and masonry structures. Founda-
tions. Prereq: Consent of instructor.
443 Building Energy Analysis (3) Balancing heat flow
through external skin of residential and small
and large commercial buildings. Local climate evaluation.
Site planning, building size and orientation, window
area, wall treatment, infiltration control, and other design
elements. Energy use quantification methods and eco-
omic analysis of energy efficient design features.
Architectural program analysis of external and inter-
444 Advanced Environmental Control Systems (3) In-depth analysis and innovative concepts in design
of heating, ventilating, and air conditioning. Prereq:
341.
445 Advanced Lighting (3) In-depth analysis and inno-
ative concepts in design of lighting. Prereq: 342.
473 Architectural Photography (3) Photography as
design, research, and presentation medium. Applica-
tion of photographic techniques, printing and processing.
Color and black and white.
Art
(College of Liberal Arts)
MAJOR
DEGREE
Art..................................................M.F.A.

Don. F. Kurka, Head
William C. Kennedy, Associate Head

Professors:
S. J. Blain, M.F.A. Wisconsin; R. A. Clarke,
M.S. Wisconsin; D. G. Cleaver, Ph.D.
Chicago; J. S. Falsetti, M.S Ohio State;
W. C. Kennedy, M.F.A. Wisconsin;
D. F. Kurka, Ph.D. New York; W. E. Leland,
M.F.A. Tennessee; P. R. Livingston, M.F.A.
Wisconsin; F. Martinson, Ph.D. Chicago;
P. G. Nichols, M.F.A. Michigan; D. Peacock,
M.F.A. Iowa; F. C. Stewart, M.F.A.
Claremont.

Associate Professors:
P. M. Brakke, M.F.A. Yale; R. H. Daehnert,
M.F.A. Wisconsin; J. F. Darrow, Ed.D. Illinois
State; M. B. Goldenstein, M.F.A., Nebraska;
B. Lee, M.F.A. Yale; R. LeFevre, M.F.A.
Rochester Institute of Technology; F. Moffat,
Ph.D. Chicago; T. J. Riesing, M.F.A.
Nebraska; S. Yates, M.F.A North Carolina
(Greensboro).

Assistant Professors:
D. Habel, Ph.D. Michigan; B. Lyons, M.F.A.
Arizona State; A. Neff, Ph.D. Pennsylvania;
T. Sause, M.F.A. Wisconsin.

Instructor:
D. Wilson, M.F.A. California (San Diego).

The Master of Fine Arts is the terminal
degree in studio art. It is offered in the con-
centration areas of ceramics, graphic design/
illustration, drawing, fiber-fabrics, Joining
printmaking, sculpture, and watercolor. Inter-
area studies are available with consent of
the faculty. In order to become a candidate,
the applicant must be admitted by The Grad-
uate School and approved by the
Department of Art. In addition to the admis-
sion requirements of The Graduate School,
the Department of Art specifically requires the
following:
1. A detailed letter of intent.
2. Three letters of recommendation from
former professors or professionals in the
field.
3. An undergraduate major in art or evi-
dence of equivalent proficiency.
4. A portfolio to be evaluated by the
faculty. Application forms and further infor-
amation are available by writing to the
Department of Art.

M.F.A. REQUIREMENTS
A minimum of 60 hours is required:
1. Successful completion of 20 hours of
study 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.)
2. A minimum of 9 hours of art history for
graduate credit.
3. Eleven hours of electives which may
consist of any combination of courses
offered by the University for graduate credit.
Art 559, Project in Lieu of Thesis (20
hours). A third year of semi-independent
study. Student must have completed all other
course work prior to registration.
4. A student with the permission of the
area faculty can petition to take 3 hours of
outside academics as a substitute for 3
hours of art history or 3 hours of concentra-
tion area. The petition is to be presented
to the graduate committee for final approval
and should directly address the need and
relevance of this substitution to the student's
concentration.

Four semesters beyond the Bachelor's
degree are required in residence. Residence
is defined by the Department of Art as (1) a
minimum enrollment of 6 hours per semester
and (2) use of Department 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 6
members and will be appointed prior to regis-
tration for Art 559. Three members of
the committee shall be as follows: one from the
candidate's concentration area who shall be
the major professor, one from art history,
and one from a studio discipline outside the
concentration area.

Exhibition and oral examination: With the
ACADEMIC STANDARDS

1. First-year evaluation: At the end of the first 2 semesters in residence, the student must present a portfolio for evaluation by the faculty and receive permission to continue in the program.

2. Second-year evaluation: With completion of all course work, the student must present work for evaluation by the faculty and receive permission to register for Projects in Lieu of Thesis.

3. 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.

GRADUATE MINOR IN THE HISTORY OF ART

A graduate minor in Art History may be arranged with consent of the student's committee, the instructors involved, and The Graduate School. Prerequisite is an undergraduate minor in Art History, or its equivalent, and reading knowledge of French, German, or Italian, unless waived by the Art History faculty.

401 Fiber: Advanced Projects (3-6) Prereq: 302 or consent of instructor. May be repeated. Maximum 12 hrs.

402 Fabric: Advanced Projects (3-6) Prereq: 301 or consent of instructor. May be repeated. Maximum 12 hrs.

405 Advanced Computer Enhanced Design (3) Prereq: 404 or consent of instructor. May be repeated. Maximum 6 hrs.

406 Goldsmithing (3-6) Metalsmithing techniques: granulation, electroforming, electroplating, electro polish ing, anodizing, and photo processes with individual studio projects to develop personal style of expression. Prereq: 6 hrs of metalsmithing or consent of instructor. May be repeated. Maximum 12 hrs.

409 Special Topics in Fiber/Fabric (3) Student- or instructor-initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 hrs.

411 Drawing IV (6) Individualized pursuit of personal drawing techniques and concepts; supplemented by individual and group critiques; weekly life drawing sessions. Prereq: 311. May be repeated. Maximum 12 hrs.

413 Painting IV (6) Individual concepts and personal expression with varied media. Prereq: 313. May be repeated. Maximum 12 hrs.


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


424 Ceramics: Clay and Glazes (3) Clay chemistry, clay bodies, glaze theory, glaze calculation, intensive formulating, mixing, and testing of clay bodies and glaze formulas. Prereq: 321 and 322.

425 History of Ceramics Seminar (3) Ceramics from ancient through contemporary. Ceramics sculpture, and vessel aesthetic. Slide lectures and individual presentations. May not be used toward art history requirement. Prereq: 321 and 322.

426 Kilns: Design, Construction and Operation (3) Designing kilns, traditional and modern refractories, construction methods, and operation of wood, gas, and electric kilns. Prereq: 331 and 332.

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


439 Special Topics in Photography (3) Student- or instructor-initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 hrs.

441 Advanced Sculpture (3-6) Individual development of sculptural problems and techniques. Prereq: 6 hrs of 300 level sculpture. May be repeated. Maximum 12 hrs.

449 Special Topics in Sculpture (3) Student- or instructor-initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 hrs.


453 Advertising Illustration (3) Advertising illustration media and techniques as applied to product illustration. Prereq: 354.

454 Editorial Illustration (3) Editorial illustration media and techniques as applied to book, magazine, and newspaper illustration. Prereq: 453.

456 Graphic Design/ illustration Practicum (1-12) Practical experience in visual illustration medium. Only by prearrangement with department. Prereq: Senior standing and consent of instructor. May be repeated. Maximum 12 hrs.

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

462 Intaglio III (3-6) Individual projects through advanced color printing methods and combinations with other print media. Prereq: 362. May be repeated. Maximum 12 hrs.

463 Lithography III (3-6) Individual projects through advanced color etching methods from stones and aluminum plates. Prereq: 363. May be repeated. Maximum 12 hrs.


469 Special Topics in Printmaking (3) Student- or instructor-initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 hrs.

471 History of North American Art (3) Landmarks in painting, architecture, sculpture, and design from prehis toric 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 History of Modern Architecture in Europe and America (3) 19th-century styles, Sullivan and skyscraper. 20th century: Viennese leaders, the Bauhaus, Gropius, Van der Rohe, Le Corbusier, and Wright. Aalto to Kahn, Tange and Metabolism, Archigram, Soleri, and Venturi.

475 History of the 19th-Century Painting in Europe and America (3) France: Neo-classicism, Romanticism, Friedrich, Constable, Turner, Corot and Barbizon landscapists, Hudson River Group, Pre-Raphaelite Brother hood, Manet, Courbet, Impressionism, Eakins, Homer, Seurat through Cezanne.

476 History of 20th-Century Painting in Europe and America (3) Fauvism, Die Brucke, Cubism, Der Blaue Reiter, Futurism, Dada and Surrealism, geometric abstraction, social commentary. Painting Abstract Expressionism in U.S. and parallels in Europe; Pop, Op, Minimal and Concept art.

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

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. May be repeated. Maximum 12 hrs. (Same as Anthropology 484.)

485 History of Printmaking (2) Prints from 15th century to present. 20th century in Europe and U.S. Prereq: 172 and 173.

486 Art of Indian Asia (3) History of Indian art: Central Asia and Southeast Asia.

489 Studies in Art History (3) Concentration in individually selected area. Prereq: 12 hrs of art history and consent of instructor. May be repeated. Maximum 6 hrs.

494 Individual Problems (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hrs.

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

499 Special Topics (3) Student- or instructor-initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 hrs.

502 Registration for Use of Facilities (3-15) 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. S/NC only. E

505 Graduate Fiber and Fabric (1-6) May be repeated. Maximum 10 hrs.

506 Graduate Fiber and Fabric II (1-6) May be repeated. Maximum 12 hrs.

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

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

513 Graduate Painting I (2-6) May be repeated. Maximum 10 hrs.
514 Graduate Painting I (2-6) May be repeated. Maximum 10 hrs.
515 Graduate Watercolor I (2-6) May be repeated. Maximum 10 hrs.
516 Graduate Watercolor II (2-6) May be repeated. Maximum 10 hrs.
521 Graduate Ceramics I (2-6) May be repeated. Maximum 10 hrs.
525 Graduate Ceramics II (2-6) May be repeated. Maximum 10 hrs.
541 Graduate Sculpture I (2-6) May be repeated. Maximum 10 hrs.
542 Graduate Sculpture II (2-6) May be repeated. Maximum 10 hrs.
551 Graduate Graphic Design/Illustration I (2-6) May be repeated. Maximum 10 hrs.
552 Graduate Graphic Design/Illustration II (2-6) May be repeated. Maximum 10 hrs.
561 Graduate Printmaking-Intaglio I (2-6) May be repeated. Maximum 10 hrs.
562 Graduate Printmaking-Intaglio II (2-6) May be repeated. Maximum 10 hrs.
563 Graduate Printmaking-Lithography I (2-6) May be repeated. Maximum 10 hrs.
564 Graduate Printmaking-Lithography II (2-6) May be repeated. Maximum 10 hrs.
565 Graduate Printmaking-Screen Printing I (2-6) May be repeated. Maximum 10 hrs.
566 Graduate Printmaking-Screen Printing II (2-6) May be repeated. Maximum 10 hrs.
579 Special Topics in Art History (3) Student- or instructor-initiated course offered at convenience of department. May be repeated.
580 Thesis (1-15) P/NP only. E

46 Fields of Instruction/Art and Music Education

Art and Music Education

(Majors of Art and Music Education)

ART EDUCATION

College of Education

Charles H. Ball, Head

Professors:
C. H. Ball, Ph.D. Peabody; H. N. Hull, Ed.S.
Peabody; A. W. Humphreys (Emeritus), Ed.D.
Illinois; J. H. Jones (Emeritus), Ed.D.
Columbia; W. J. Julian, Ph.D. Northwestern;
J. W. Robertson (Emeritus), E.D. Columbia;
A. W. Tippa, Ph.D. Michigan.

Associate Professors:
W. H. McDaniel, M.S. Tennessee; J. O. Mintz,
Ed.D. Columbia; M. C. Moore, Ph.D.
Michigan; A. J. Palmer, Ph.D. California (Los Angeles); J. P. Watkins, M.S. Tennessee.

Assistant Professor:
J. R. Sparks, M.S. Tennessee.

The Department of Art and Music Education offers graduate programs leading to the Master of Science with a major in Art Education and in Music Education. Although degree requirements are sufficiently flexible to allow programs to be tailored to the specific needs of the individual, all emphasize a balance between creative work in the arts discipline, advanced teaching tech-

iques, and a study of the philosophical and historical foundations of the field.

For additional information, contact the head of the Department of Art and Music Education, Room 211-A Music Building; (615) 974-3331.

Art Education

The Master of Science program requires Art Education 510, 520, and 593; 6 hours of 500-level courses in art history; 6 hours of 500-level courses in studio art; Curriculum and Instruction 580; 6 hours of 500-level elective courses in education; and 5 hours of Thesis 500.

The thesis may be of the conventional type or an exhibition of original works of art produced under the direction of the Art and Art Education faculty and accompanied by a written analytical and critical essay. This essay must include a) a philosophical statement, b) an explanation of process and media for each work presented, and c) a compositional analysis of each work. A comprehensive written examination will be required during the final semester of work.

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

502 Registration for Use of Facilities (3-15) 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. S/NC only. E

510 History and Philosophy of Art Education (3) United States from 1860's to present. Prereq: Consent of instructor.

520 Program Development in Art Education (3) Current practices and procedures in art education: unit planning, sequential organization and teaching methods. Prereq: Consent of instructor.

590 Special Topics in Art Education (3-6) Prereq: Consent of instructor. May be repeated. Maximum 8 hrs.

593 Independent Study in Art Education (3-6) Prereq: Consent of instructor. May be repeated. Maximum 8 hrs.

Music Education

The Master of Science requires Music Education 510 and 520; 9 hours of music education electives at the 500 level; 6 hours of Thesis 500; 6 hours of 500-level courses in music theory or history; 2 hours of applied music at either the 400 or 500 level; 2 hours of music ensemble at the 500 level; and 6 hours of music electives at the 500 level.

A three credit research problem and three extra hours course work in Music Education may be substituted for Thesis. If a larger thesis problem is desired, the thesis credit may be increased to 9 credit hours and 3 credit hours of Music Education electives may be dropped.

Diagnostic tests in theory, music history, music education, and applied music will be required. A final written and oral examination will be required.

500 Thesis (1-15) P/NP only. E
502 Registration for Use of Facilities (3-15) 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. S/NC only. E

510 Foundations of Music Education (3) History, philosophical and aesthetic bases. Prereq: Consent of instructor.

520 Research in Music Education (3) Principles of curriculum development and research report writing. Application of knowledge of research techniques to analysis of existing research literature in music education. Prereq: Consent of instructor.

530 Advanced Band Literature and Conducting (3) Reading, conducting, and interpreting band scores suitable for school, college, and community bands; contemporary and standard band literature. Prereq: Consent of instructor.

540 Advanced Choral Literature and Conducting (3) Reading, conducting, and interpreting vocal scores suitable for school, college, church, and community groups. Prereq: Consent of instructor.


555 Administration and Supervision of School Music (3) Problems of supervision, research, and in-service education, teacher preparation, guidance. Prereq: Consent of instructor.

560 Psychology of Music Teaching (3) Research on musical perception and cognition and its application to teaching of music. Definition and measurement of musical ability. Prereq: Course in general psychology and 1 yr of music theory or consent of instructor.

570 Studies in Elementary and Middle School Music (3) Current trends and research in teaching of music in elementary and middle school. Prereq: Consent of instructor.

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 hrs.

590 Special Topics in Music Education (3) Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

593 Special Problems in Music Education (3) Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

Astronomy

See Physics and Astronomy

Audiology and Speech Pathology (College of Liberal Arts)

MAJORS

Speech and Hearing Science (M.A.)

Speech Pathology (Ph.D.)

DEGREES

MA: Speech and Hearing Science, Ph.D. Speech Pathology

Professors:

S. Adler, Ph.D., Ohio State; C. W. Asp, Ph.D., Ohio State; P. J. Carney, Ph.D., Iowa; H. L. Luper, Ph.D., Ohio State; T. Nabetock, Sc. D. Prague, H. A. Peterson, Ph.D., Illinois; B. Silverstein, Ph.D., Purdue.

Associate Professors:

S. B. Burchfield, Ph.D., Michigan State; A. O. Diefendorf, Ph.D., Washington; C. J. Ferrell, M.A., Tennessee; E. Hamby, Ph.D., Iowa.

Assistant Professor:


THE MASTER'S PROGRAM

A major is offered in Audiology or in Speech Pathology. A minor is offered in each of the two areas when approved by the department. The content of each major program is to provide the student with the scholarly and professional skills necessary for functioning as an independent professional clinician in any clinical environment. Students majoring in either of the two areas are expected to complete the academic requirements for clinical certification from the American Speech-Language-Hearing Association, including the required number of clock hours of clinical practicum (minimum 150 hours as a graduate student, 300 total). An exception to this rule must be approved by the appropriate departmental committee. Enrollment in clinical practicum courses is required for all clinical practice experiences. If the undergraduate preparation does not include sufficient course work in speech pathology, audiology, psychology, and related fields, the student may be required to make up such deficiencies. Students may elect either the thesis or the non-thesis option. Students in both programs are required to take 511 and 517. The Master's program with the thesis will include a minimum of 30 semester hours of approved graduate credit, including 6 hours of 500 credit in the preparation of an acceptable research report representing original independent work, and a final oral examination. At least two-thirds of these total courses must be at the 500 or 600 level; no more than 6 hours of thesis courses and no more than 6 hours of practicum. Students in the non-thesis option program must present a total of 36 semester hours of approved graduate credit and pass a final written examination. A minimum of 24 hours must be at the 500 or 600 level, no more than 8 of which may be practicum. The thesis as to choice of the thesis or non-thesis program is normally made following completion of 511 and a conference with the student's advisor.

THE DOCTORAL PROGRAM

The Ph.D. program in Speech and Hearing Science seeks to develop individuals for research or college teaching careers in the concentration areas of speech and language pathology, audiology, speech science, or hearing science. This degree program is research-oriented, with primary emphasis upon developing the scientific and cognitive skills which allow individuals to identify and independently study important questions concerning the human act of oral and aural communication. Students will be expected to demonstrate their knowledge in the areas of:

1. Basic speech, hearing, and language processes;
2. Speech, hearing, and language disorders;
3. Related disciplines providing insight into human communication processes;
4. Technical skills in instrumentation and experimental design which enable the student to investigate problems pertaining to speech and hearing processes.

The program normally consist of three or more calendar years of graduate study beyond the Master's degree with the first year being devoted primarily to formal course work and the last year to full-time research culminating in the doctoral dissertation.

Specific programs of study will be determined by the student in consultation with his/her faculty committee. In addition to the general Graduate School requirements, specific requirements for the Doctor of Philosophy in Speech and Hearing Science will include:

1. Successful completion of course work in the study of one or more research tools or other specific scientific methodological techniques pertinent to the research interests of the candidate. The choice of research tool(s) is subject to departmental approval.
2. A minimum of 6 semester hours of graduate credit obtained in course work in a cognate field outside the Department of Audiology and Speech Pathology. These hours are in addition to those required in item 1 above.
3. Sufficient course work within the department but outside the area of concentration to give a broad foundation and understanding.
4. A comprehensive examination to demonstrate scholarly knowledge of audiology, speech and language pathology, and speech and hearing science; and advanced knowledge of the specifics of the area of concentration.
5. Research and dissertation to give at least 24 hours of graduate credit (600 level).
6. A final oral examination.

425 Introduction to the Psychology and Education of the Hearing Impaired (3) (Same as Special Education 425.)

431 Stuttering (3) Nature, appraisal and treatment. Prereq: 304 or consent of instructor.

433 Clinical Practice in Speech-Language Pathology (1-4) Prereq: 320 or consent of instructor. Enrollment for fewer than 2 hrs must have prior departmental approval. (Same as Special Education 433.)

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

440 Voice Disorders (3) Etiology, diagnosis, and treatment of organic and functional voice disorders. Prereq: 304, 306, or consent of instructor. (Same as Special Education 440.)

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


463 Practical Applications of Language Habilitation Techniques (3) Various methods and procedures in treating delayed/disordered preschoolers. Alternative/ augmentative systems. Prereq: 461 or consent of instructor.

465 Speech and Language of the Culturally Different Child (3) Speech and language differences of children of various minority groups, of different ethnic and class membership and from different geographic regions.
473 Audiology II (3) Basic principles of clinical audiology, hearing loss, testing, masking and overview of special auditory tests. Prereq: 371. (Same as Special Education 473.)

494 Introduction to Aural Rehabilitation (3) Rehabilitation of acoustically impaired having communication difficulties; hearing and other sensory modalities. Prereq: 473.

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

502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during any semester when student uses University facilities and/or foreign language degree is completed. May not be used toward degree requirements. May be repeated. S/NC only. E

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 the Ear (3) Structure and function of human ear. Prereq: 371.

508 Electrophysiological Assessment of Auditory Function (3) Techniques for electrophysiological measurement of auditory sensitivity, sound transmission by ear, distortion in ear and ear as analytic mechanism. Prereq: Consent of Instructor.

511 Introduction to Research in Speech and Hearing (2) Analysis of research techniques, application of statistics, and completion of pilot research project. Prereq: Psychology 385 or equivalent or consent of instructor.

512 Clinical Practice in Audiology (1-4) Prereq: 473 and 494. May be repeated. Maximum 9 hrs.

513 Clinical Practice in Audiology: Off-Campus Sites. (1-4) Prereq: Consent of instructor.

514 Practicum in Verbo-Tonal Habilitation (1-4) Prereq: 494, 595, or consent of instructor. May be repeated. Maximum 8 hrs.

515 Practicum in Aural Rehabilitation (1-4) Prereq: 473 and 494. May be repeated. Maximum 8 hrs.

517 Instrumentation in Audiology and Speech Pathology (3) Principles of instrumentation in audiology and speech pathology; laboratory assignments for familiarization of students with instruments for measuring speech and hearing processes.

520 Aphasia (3) Historical review of aphasia literature, theories of brain functioning, aphasic classification and terminology, tests and rationale for testing, etiology, therapy considerations and prognosis for recovery. Prereq: 526 or equivalent or consent of instructor.

522 Seminar: Articulation and Voice Disorders (3) Current research in diagnosis and management of articulation and voice disorders. Undergraduate courses in articulation and voice disorders or consent of instructor.

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

532-33-34 Advanced Clinical Practice in Speech-Language Pathology: Off-Campus Sites (1-4, 1-4, 1-4) Prereq: 534 or equivalent and consent of instructor. 534 may be repeated. Maximum 6 hrs. Enrollment for less than 2 hrs must have prior departmental approval.

535-36-37 Advanced Clinical Practice in Speech-Language Pathology: Off-Campus Sites (1-4, 1-4, 1-4) Prereq: 100 hrs clinical experience, consent of instructor. May be repeated. Maximum 8 hrs each. Enrollment for less than 2 semester hrs must have prior departmental approval.

538 Advanced Clinical Practice in Speech-Language Pathology: Public Schools (1-4) May be repeated. Maximum 6 hrs. Enrollment for less than 2 hrs 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 management of motor speech disorders. Prereq: 506.


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 Advanced Audiology (3) Theory and practice of advanced pure tone and speech audiometry; instrumentation and interpretation of audiometric findings with differential diagnosis. Prereq: 473.

547 Special Problems in Audiology (1-3) Prereq: 473 or equivalent and consent of instructor. May be repeated. Maximum 9 hrs.

548 Special Study in Audiology (1-3) Special reading, consultation, and research activities in field of audiology. May be repeated. Maximum 6 hrs.

550 Seminar in Audiology (1-3) Significant research in various areas of audiology. Prereq: Consent of instructor. May be repeated. Maximum 10 hrs.

551 Special Auditory Tests (3) Theoretical and practical consideration of auditory procedures used for differentiating among conductive, cochlear, retrocochlear, central and nonorganic hearing loss. Prereq: 473, 507, and 546.

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


555 Special Problems in Speech-Language Pathology (1-3) Prereq: Consent of instructor. May be repeated. Maximum 8 hrs.

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

557 Management and Supervision for Speech-Language-Hearing Professionals (3) Management systems, accountability, performance appraisal and clinical supervision for audiologists and speech language pathologists interested in private practice, supervisory or administrative positions.

561 Tutorial in Child Language Pathology (2) Interactions with various staff members of Pediatric Language Programs: selected topics.

573 Hearing Disorders (3) Auditory disorders commonly encountered in medical environment. Otology, pathology and evaluative procedures to differentiate lesions of auditory mechanism. Field trips may be required. Prereq: 473 or equivalent and 507.

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.

575 Management and Supervision for Speech-Language-Hearing Professionals (3) Management systems, accountability, performance appraisal and clinical supervision for audiologists and speech language pathologists interested in private practice, supervisory or administrative positions.

576 Advanced Seminar in Speech and Language (2) Applications of recent technological advances, computers, to speech and hearing research. Prereq: Consent of instructor.

578 Directed Research (1-4) Participation in ongoing or non-dissertational research. Prereq: Consent of instructor. May be repeated. Maximum 8 hrs.

580 Directed Study in Speech and Language (2) Topics vary. Prereq: Consent of instructor. May be repeated. Maximum 8 hrs.

582 Directed 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 hrs.


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

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


603 Language Science (3) Seminar of theories and paradigms of research on acquisition and use of language: phonology, syntax, semantics and pragmatics. Prereq: Graduate standing and consent of instructor.


608 Advanced Clinical Concepts and Models in Hearing Science (3) Theoretical concepts of clinical manifestations in all pathologies of the ear. Electrical, mechanical, and mathematic models of normal and abnormal auditory mechanism function. Prereq: Consent of instructor.

609 Seminar in Speech Science (2) 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 8 hrs.

610 Seminar in Hearing Science (2) Advanced study of perception of nonspeech acoustic signal, detectability, pitch, loudness, differential threshold, adaptation, and fatigue. Prereq: 602 or consent of instructor. May be repeated. Maximum 8 hrs.

612 Experimental Design in Speech and Hearing (2) Design of research experiments in theses and related journals. Generation of experimental designs. Prereq: Consent of instructor.

619 Advanced Technology in Speech and Hearing (2) Applications of recent technological advances, computers, to speech and hearing research. Prereq: Consent of instructor.

650 Advanced Seminar in Audiology (2) Topics vary. Prereq: Consent of instructor. May be repeated. Maximum 8 hrs.

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 hrs.

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

657 Directed Study in Speech Pathology (1-3) Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

658 Directed Study in Audiology (1-3) Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

659 Directed Study in Speech Science (1-3) Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

660 Directed Study in Hearing Science (1-3) Prereq: Consent of instructor. May be repeated. Maximum 8 hrs.
Aviation Systems

(College of Engineering)

MAJOR
Aviation Systems

DEGREE
M.S.

Lead Professor:
R. D. Kimberlin, M.S. Tennessee.

Professors:
F. G. Collins, Ph.D. California (Berkeley); W. Frost, Ph.D. Washington; A. A. Mason, Ph.D. Portland; J. M. Wu, Ph.D. California Institute of Technology; R. L. Young, Ph.D. Northwestern.

The University of Tennessee Space Institute offers a program leading to the Master of Science with a major in Aviation Systems. The Aviation Systems program is designed for those who possess a Bachelor's degree in engineering or science and who wish to study under a "systems philosophy" toward careers in research and development or administration in areas pertinent to aviation.

To qualify for admission to this program, the applicant must possess a Bachelor's degree in engineering or science from an accredited institution, show evidence of ability to pursue and benefit from the program, and fulfill the University of Tennessee Graduate School admission procedures and grade point standards.

REQUISITES

Both thesis and non-thesis programs are available. The thesis program involves satisfactory completion of the following requirements:

1. Twelve hours of 500-level courses in the major field of aviation systems.
2. Six hours in industrial engineering for the research and development area.
3. Three hours in industrial engineering or economics for the administrative area.
4. Three to six hours of electives selected from the major field, engineering, and/or the areas of item three (3) above.
5. Six hours of Aviation Systems 500 demonstrating the ability to conduct and report on an independent investigation.

Course work submitted for the degree and defense of the project course paper.

The thesis program involves a minimum of 30 semester hours credit while the non-thesis program involves a minimum of 30 semester hours credit.

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


502 Registration for Use of Facilities (3-15) 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. S/NC only. E.

503 Air Vehicles (3) Current capabilities and future requirements for civilian and military air vehicles. Parameters significant for air vehicle type selection. Integration of air vehicle into aviation systems. Prereq: 501.


505 Governmental Policies for Aviation (3) Theoretical and legal basis for economic and governmental regulation of aviation. Historical and legislative development of aviation regulatory agencies, organizational structure, administrative and enforcement procedures. Prereq: 501.

510 Special Topics in Aviation Systems (3) Current problems. Prereq: Consent of instructor. May be repeated with consent.

521-22 Experimental Flight Mechanics (3,3) Experimental techniques for flight mechanics. Specialized equipment in air vehicle testing. Tests cover broad range of aircraft performance, stability and control characteristics in addition to instrumentation and data reduction methods. Performance testing, flight control. Prereq: Aerospace Engineering 422.


Biochemistry

(College of Liberal Arts)

MAJOR
Biochemistry

DEGREES
M.S., Ph.D.

Wesley D. Wicks, Head

Professors:
J. E. Churchich, Ph.D. Sheffield (England); L. Huang, Ph.D. Michigan State; P. J. Joshi, Ph.D. Poona (India); K. J. Monty, Ph.D. Rochester; T. P. Salo (Emeritus), Ph.D. Michigan; W. D. Wicks, Ph.D. Harvard.

Assistant Professors:
R. H. Feinberg (Emeritus), Ph.D. California (Berkeley); J. W. Koontz, Ph.D. Kentucky.

Adjunct Faculty:
E. Fairfield, Ph.D. Stony Brook; W. Ferras, Ph.D. Duke; S. Kennel, Ph.D. California (San Diego); D. Roberts, Ph.D. California (Davis).

MASTER'S PROGRAM

1. At least one year each of Introductory Organic Chemistry with laboratory and approved physical chemistry.
2. A minimum of 8 semester hours of approved biology courses beyond the introductory level and including the subjects of genetics and physiology.

2. Biochemistry 511-12 and 515-16.
3. At least 6 hours of advanced seminar courses from the following: 601, 603, 604, 605, 606, 607.
4. At least 6 hours of Master's research and a thesis.
5. A final examination that covers both the thesis endeavor and the subject matter of the course requirements.

THE DOCTORAL PROGRAM

1. Introductory Organic Chemistry, Introductory Physics, Differential and Integral Calculus, approved physical chemistry, and at least 12 hours of biology beyond the introductory level and including the subjects of genetics and physiology.

2. Biochemistry 511-12 and 515-16.
3. At least 3 hours of approved graduate courses in chemistry, physics, or other physical science; for example, Chemistry 550, 551, 552, Physics 521, 522, 551. No survey courses will be accepted.
4. At least 6 hours of topics offered in 621 and 622.
5. Participation in 601 and 603 during the entire period of residence.
6. Comprehensive examination, taken before the end of the third year of study.
7. A dissertation reporting the results of original and significant research carried out during the terminal year of candidacy.
8. 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 Ph.D. program and have completed at least 30 hours of approved course work 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. Additional requirements for such a degree are:

1. The preparation of a research manuscript suitable for submission for publication in a major professional 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
2. Publication of at least one full-length paper in a major professional journal as senior authors.

*Though completion of these courses or their equivalent is required, they may not be taken for graduate credit.